

Town of Duxbury
5421 VT Route 100
Duxbury, Vermont 05676

ADDENDUM NO. 3
Scrabble Hill Road Culvert Replacement
June 7, 2021

TO: Prospective Bidders

This Addendum forms part of the Contract Documents and modifies the original Bidding Documents issued by the Town of Duxbury, Vermont for the Culvert Replacement Project. **Please acknowledge receipt of this Addendum in the proposal. Failure to do so may subject the Bidder to disqualification.**

I. **Contract Documents: Specification Changes**

None at the time of issuance of this Addendum.

II. **Contract Documents: Plan Changes**

None at the time of issuance of this Addendum.

III. **Questions and Answers:**

1. Please provide the cut sheets for the CAMP Precast culvert and walls.

Please find the cut sheets on the following pages

End of Addendum #3

SCRABBLE HILL ROAD CULVERT REPLACEMENT

DUXBURY, VERMONT

9'-0" x 5'-0" BOX CULVERT

PREPARED FOR:

**CAMP PRECAST CONCRETE PRODUCTS
78 PRECAST ROAD
MILTON, VT 05468**

PREPARED BY:

**DUBOIS & KING, INC.
6 GREEN TREE DRIVE
SOUTH BURLINGTON, VT 05403**

GENERAL NOTES:

1. DESIGN IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 8TH EDITION, 2017, WITH LATEST INTERIM REVISIONS, AND VTRANS STRUCTURES DESIGN MANUAL, 2010.

2. THE FOLLOWING CRITERIA WAS USED FOR DESIGN:

CULVERT:

LIVE LOAD: HL-93 + LANE LOAD OR TANDEM + LANE LOAD
EARTH COVER: 1'-6" TO 2'-6"
SOIL WEIGHT: 140 LBS/CF
GRAVEL FILL OVER CULVERT: 140 LBS/CF
AT REST EARTH PRESSURE (K_a): 0.50
MINIMUM LIFTING/HANDLING CONCRETE STRENGTH: 3,750 PSI
DESIGN CONCRETE STRENGTH (f'_c): 5,000 PSI
STEEL REINFORCEMENT YIELD STRENGTH: 60,000 PSI

WINGWALLS:

BACKFILL SOIL WEIGHT: 140 LBS/CF
BACKFILL ANGLE OF INTERNAL FRICTION: 34°
UNIFORM LIVE LOAD SURCHARGE: 100 PSF
VEHICULAR LIVE LOAD SURCHARGE: 2' EQUIV. SOIL HEIGHT
ALLOWABLE BEARING PRESSURE: 2,500 PSF (E.O.R. TO VERIFY)
MINIMUM LIFTING/HANDLING CONCRETE STRENGTH: 3,750 PSI
DESIGN CONCRETE STRENGTH (f'_c): 5,000 PSI
STEEL REINFORCEMENT YIELD STRENGTH: 60,000 PSI

HEADWALLS:

BACKFILL SOIL WEIGHT: 140 LBS/CF
BACKFILL ANGLE OF INTERNAL FRICTION: 34°
UNIFORM LIVE LOAD SURCHARGE: 100 PSF
VEHICULAR LIVE LOAD SURCHARGE: 2' EQUIV. SOIL HEIGHT
MINIMUM LIFTING/HANDLING CONCRETE STRENGTH: 3,750 PSI
DESIGN CONCRETE STRENGTH (f'_c): 5,000 PSI
STEEL REINFORCEMENT YIELD STRENGTH: 60,000 PSI

3. PRECAST CULVERT AND WINGWALL NOT DESIGNED FOR EXTERNAL HYDROSTATIC PRESSURE. ENGINEER OF RECORD TO VERIFY SPECIFIED BACKFILL MATERIAL PROVIDES ADEQUATE DRAINAGE.

4. ENGINEER OF RECORD TO VERIFY CULVERT, HEADWALL AND WINGWALL SUITABILITY TO SITE CONDITIONS INCLUDING HYDRAULIC CAPACITY, EFFECTS OF FROST, SCOUR, SETTLEMENT, GLOBAL STABILITY OF WINGWALL, RETAINED SOIL, FOUNDATION SOIL AND SITE GRADING. CULVERT AND WINGWALL DESIGN ASSUMES DEPTH OF SCOUR MATCHES TOP OF CUTOFF WALL, ENGINEER OF RECORD TO VERIFY.

5. ALL REINFORCING STEEL SHALL BE LEVEL 1, PLAIN, GRADE 60 DEFORMED BARS MEETING REQUIREMENTS OF ASTM A 615.

6. ALL CONCRETE TO BE APPROVED VTRANS MIX DESIGN MEETING REQUIREMENTS OF 540.1.

7. CLEAR COVER TO REINFORCING STEEL SHALL BE 2", UNLESS NOTED OTHERWISE.

8. ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED 3/4-INCH.

9. EACH SECTION SHALL BE DRAWN TOGETHER WITH DRAW CONNECTORS AS SHOWN IN DRAWINGS. FILL ALL RECESSES & LIFTING VOIDS WITH 5,000 PSI (28-DAY) NON-SHRINK GROUT MEETING REQUIREMENTS OF ITEM 707.03 MORTAR, TYPE IV IN THE LATEST EDITION OF THE VTRANS STANDARD SPECIFICATION FOR CONSTRUCTION AND LISTED ON VTRANS APPROVED PRODUCTS LIST.

10. DESIGN BASED ON INFORMATION IN THE FOLLOWING RESOURCES:

A. DRAWINGS TITLED "TOWN OF DUXBURY - SCRABBLE HILL ROAD CULVERT REPLACEMENT" PREPARED BY DUBOIS & KING, INC. AND LAST DATED FEBRUARY 5, 2021.

11. IF ANY OF THE WORK TO BE DONE AS SHOWN ON THE DRAWINGS DOES NOT CORRESPOND WITH THE EXISTING FIELD CONDITIONS, CONTACT THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK IN QUESTION.

12. LIFTING INSERTS ASSUME SLING ANGLE 60 DEGREES OR GREATER FROM HORIZONTAL. PROVIDE SPREADER BEAMS AND ROLLING BLOCKS AS REQUIRED TO LOAD INSERTS EQUALLY.

13. PRECAST HEADWALLS AND WINGWALLS AS SHOWN ON THE PLANS HAVE NOT BEEN DESIGNED FOR GUARDRAIL POSTS OR ANY ASSOCIATED IMPACT LOADING, ENGINEER OF RECORD TO VERIFY.

14. 2"Ø HOLES FORMED USING 2"Ø PVC PIPE. PIPE TO REMAIN IN PLACE UNLESS NOTED OTHERWISE.

15. ALL PERMANENTLY INSTALLED LIFTING INSERTS TO BE HOT-DIP GALVANIZED.

INDEX OF SHEETS:

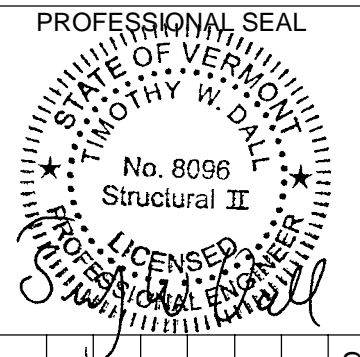
1. TITLE SHEET
2. CULVERT PLAN
3. CULVERT ELEVATION AND REINFORCING SECTION
4. ELEVATIONS AND CUTOFF WALLS
5. OUTLET WINGWALLS
6. INLET WINGWALLS
7. CUTOFF WALL LAYOUT PLAN
8. DETAILS

DuBois & King inc

6 GREEN TREE DRIVE
SO. BURLINGTON, VT 05403
TEL: (802) 878-7661
www.dubois-king.com

VERMONT
NEW HAMPSHIRE
MAINE AND NEW YORK

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NO.	DATE	DESCRIPTION	BY	CKD



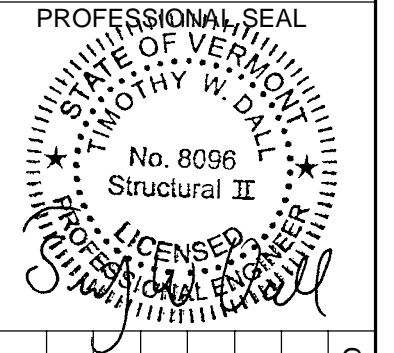
SCRABBLE HILL ROAD
CULVERT REPLACEMENT

DUXBURY, VERMONT

SHEET TITLE
TITLE SHEET

DRAWN BY MFQ	DATE 05/07/21
CHECKED BY MLM	D&K PROJECT # 827202L
PROJ. ENG. TWD	D&K ARCHIVE #

SHEET NUMBER
1
SHEET 1 OF 8



NO.	DATE	DESCRIPTION	BY	CKD



PRECAST CONCRETE PRODUCTS
78 PRECAST ROAD
MILTON, VT 05468
PHONE: (802) 893-2401
FAX: (802) 893-1542

SCRABBLE HILL ROAD
CULVERT REPLACEMENT

DUXBURY, VERMONT

SHEET TITLE
CULVERT PLAN

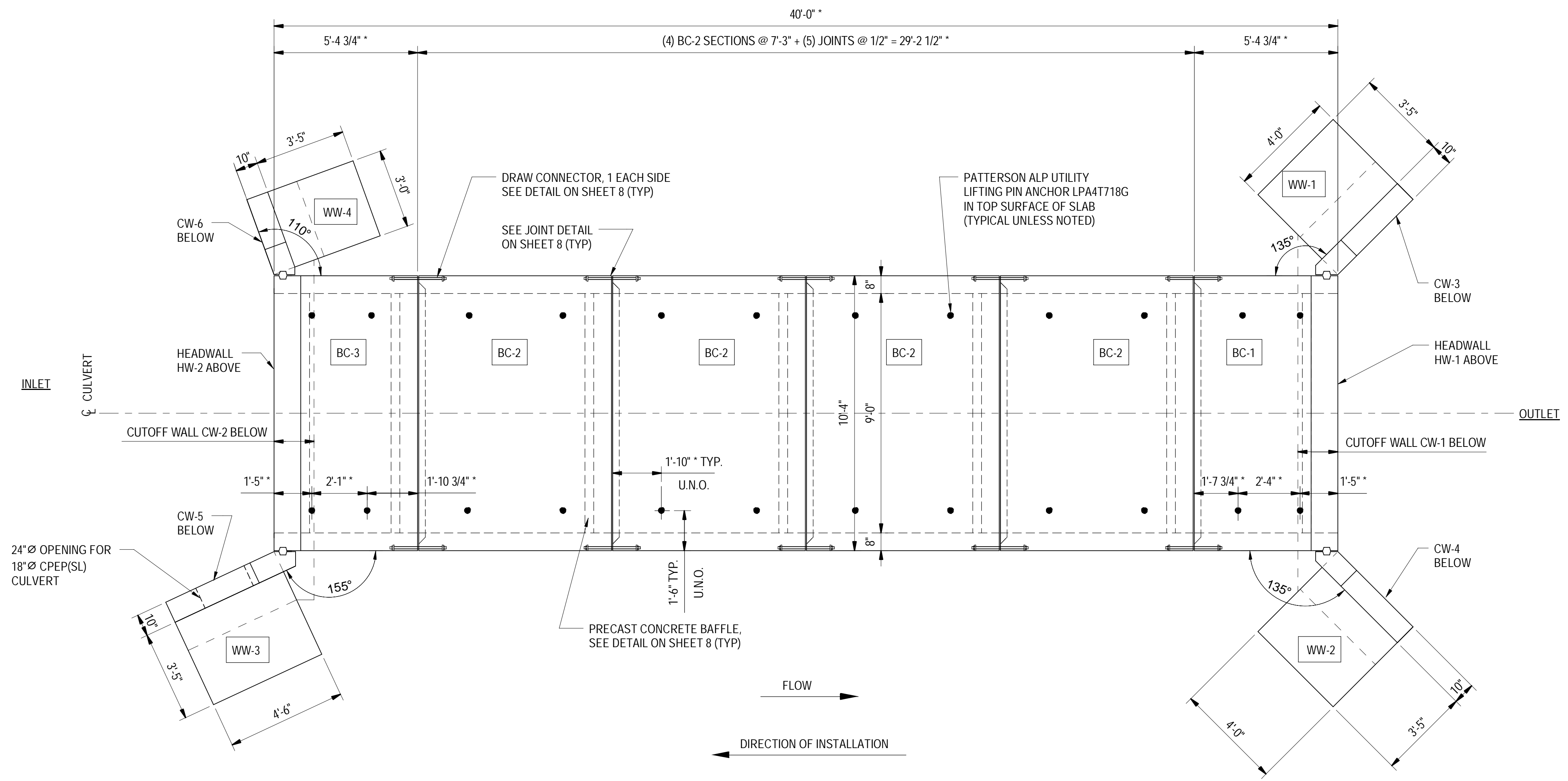
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D&K PROJECT #: 827202L

PROJ. ENG.: TWD
D&K ARCHIVE #

SHEET NUMBER

2

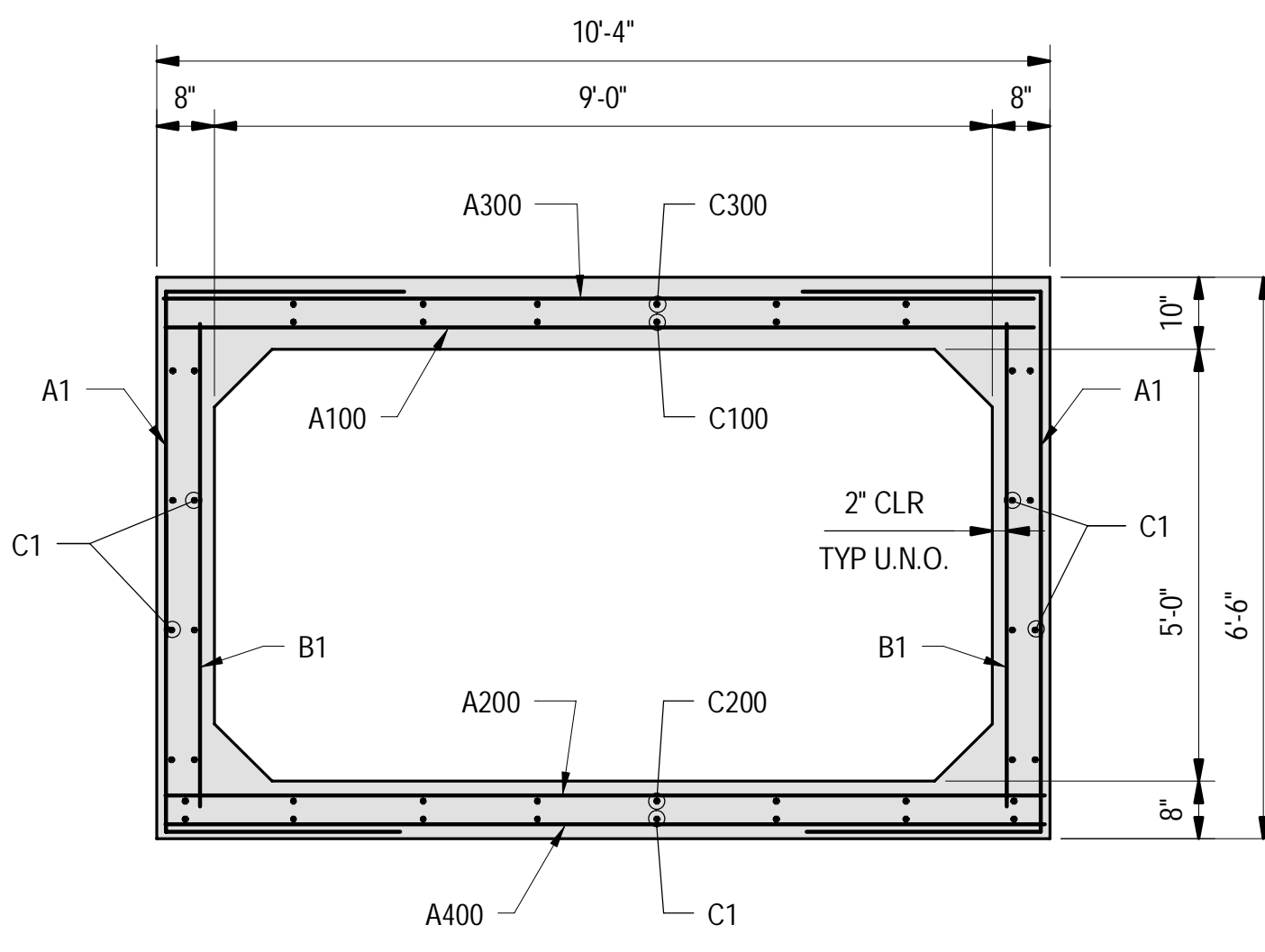
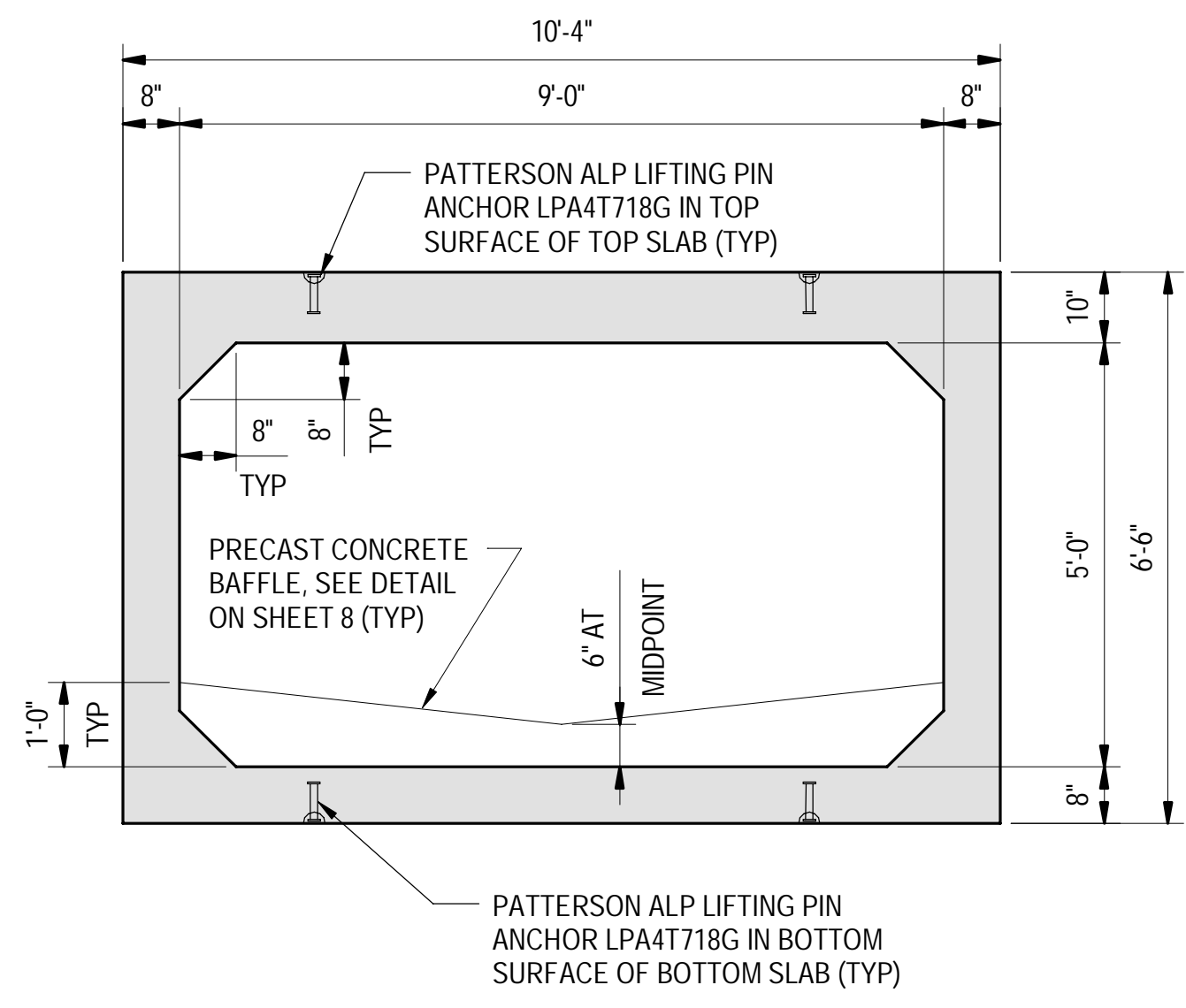
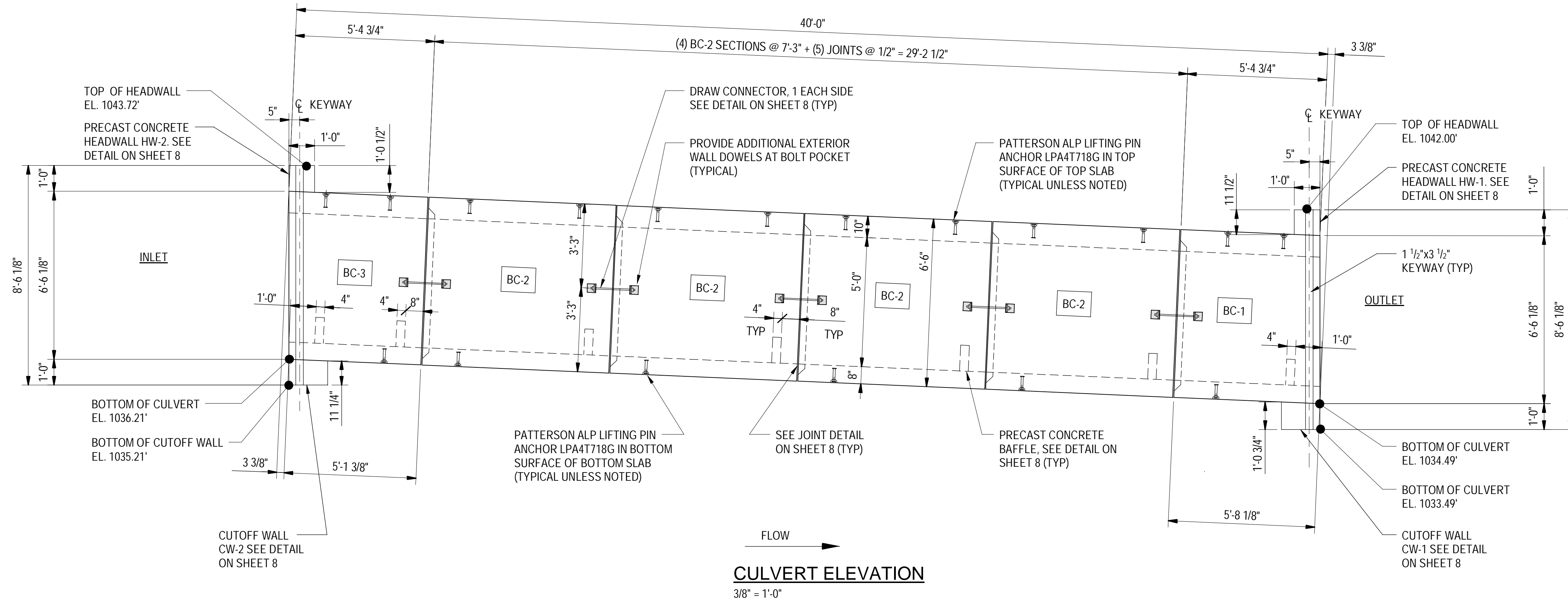


CULVERT PLAN

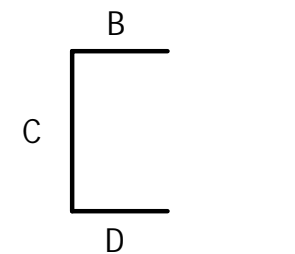
3/8" = 1'-0"
1. * - DENOTES DIMENSION ALONG CULVERT SLOPE.

MARK	QTY	LENGTH	VOL (CY)	WEIGHT (TONS)
BC-1***	1	5'-8 1/8"	5.2	10.5
BC-2**	4	7'-3"	6.3	12.7
BC-3*	1	5'-4 3/4"	5.0	10.2
CW-1	1	13'-5"	0.7	1.4
CW-2	1	12'-9 1/4"	0.7	1.4
CW-3	1	4'-0"	0.3	0.6
CW-4	1	4'-0"	0.3	0.6
CW-5	1	4'-6"	0.3	0.7
CW-6	1	3'-0"	0.2	0.4
WW-1	1	4'-0"	1.4	2.9
WW-2	1	4'-0"	1.4	2.9
WW-3	1	4'-6"	1.5	3.1
WW-4	1	3'-0"	1.1	2.1

- * - INDICATES WEIGHT AND VOLUME OF TWO BAFFLES AND HEADWALL ADDED.
- ** - INDICATES WEIGHT AND VOLUME OF ONE BAFFLE ADDED.
- *** - INDICATES WEIGHT AND VOLUME OF ONE BAFFLE AND HEADWALL ADDED.
- ALL WEIGHTS ARE VOLUMES ARE APPROXIMATE.



BAR SCHEDULE							
MARK	BAR SIZE	MAX SPACING	LENGTH	TYPE	B	C	D
A100	#5	5"	9'-11"	STR			
A200	#4	4"	9'-11"	STR			
A300	#4	10"	9'-11"	STR			
A400	#4	10"	9'-11"	STR			
A1	#4	6"	13'-6"	BENT	3'-8"	6'-2"	3'-8"
B1	#4	10"	5'-6"	STR			
C100	#4	10"	VARIABLES	STR			
C200	#4	18"	VARIABLES	STR			
C1	#4	18"	VARIABLES	STR			
C300	#4	18"	VARIABLES	STR			



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CAMP
PRECAST CONCRETE PRODUCTS
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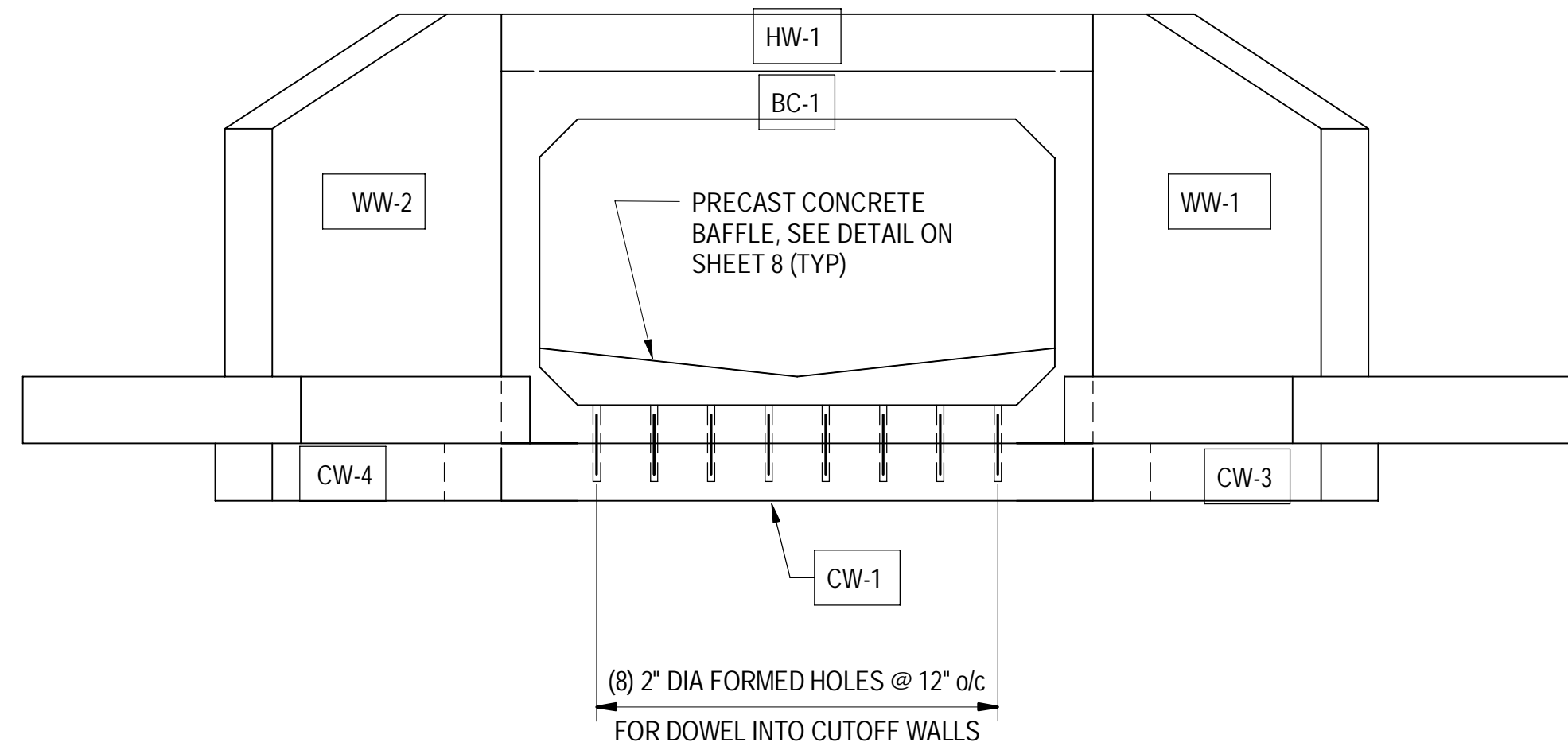
SCRABBLE HILL ROAD
CULVERT REPLACEMENT

DUXBURY, VERMONT

SHEET TITLE
**CULVERT
ELEVATION AND
REINFORCING
SECTION**

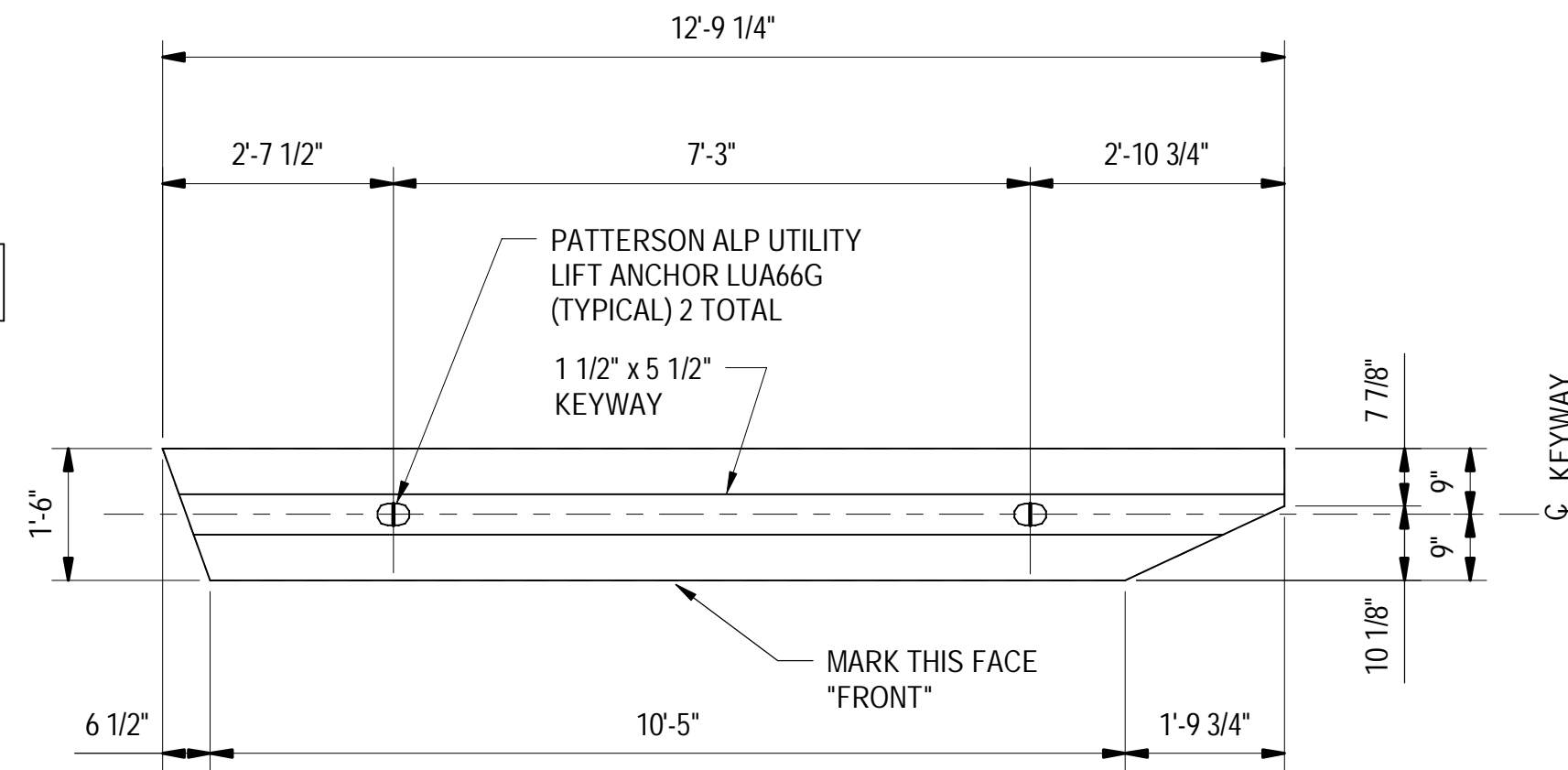
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CHECKED BY MLM	D&K PROJECT # 827202L
PROJ. ENG. TWD	D&K ARCHIVE #

SHEET NUMBER
3
SHEET 3 OF 8



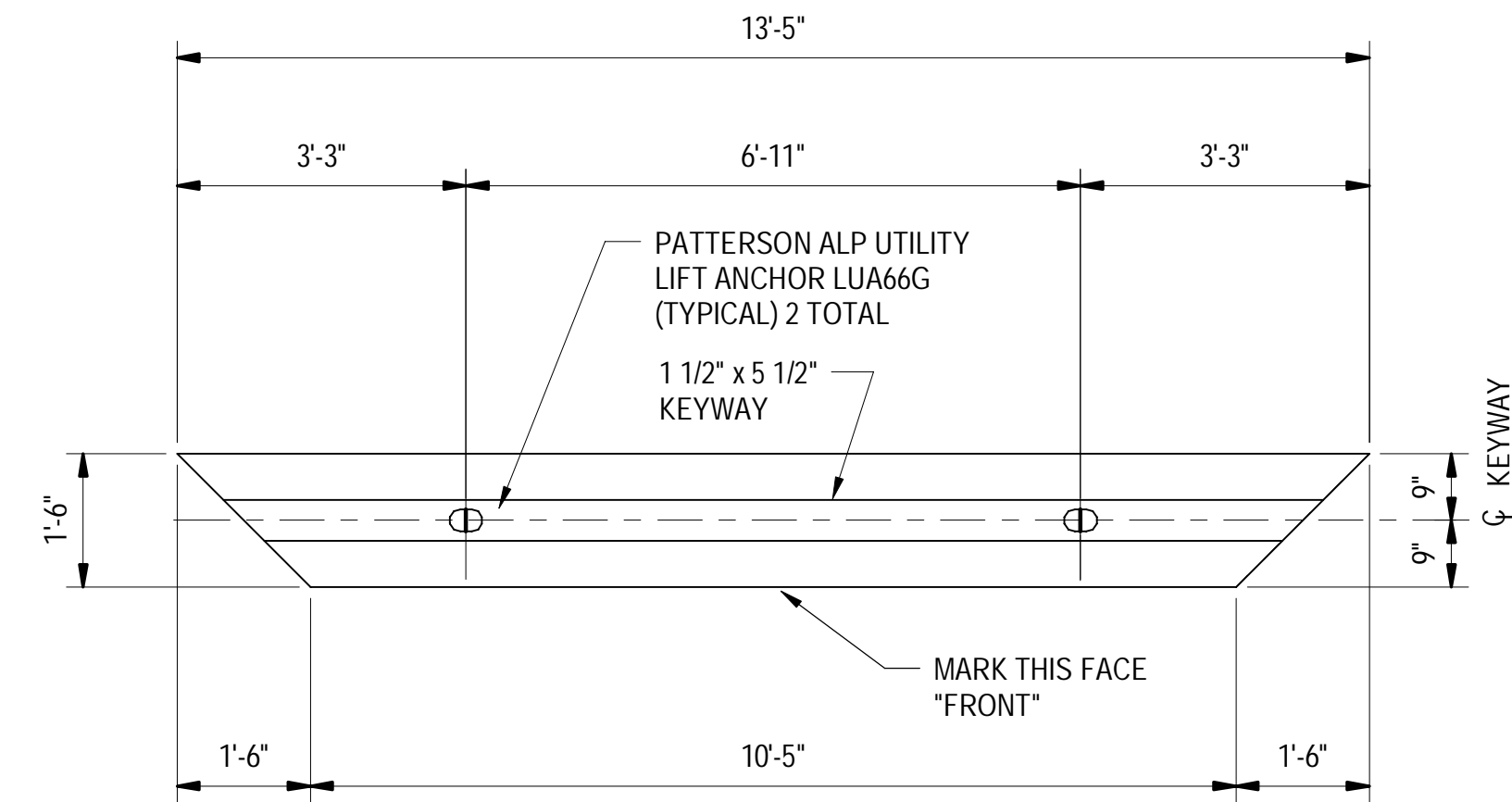
CULVERT OUTLET ELEVATION

3/8" = 1'-0"



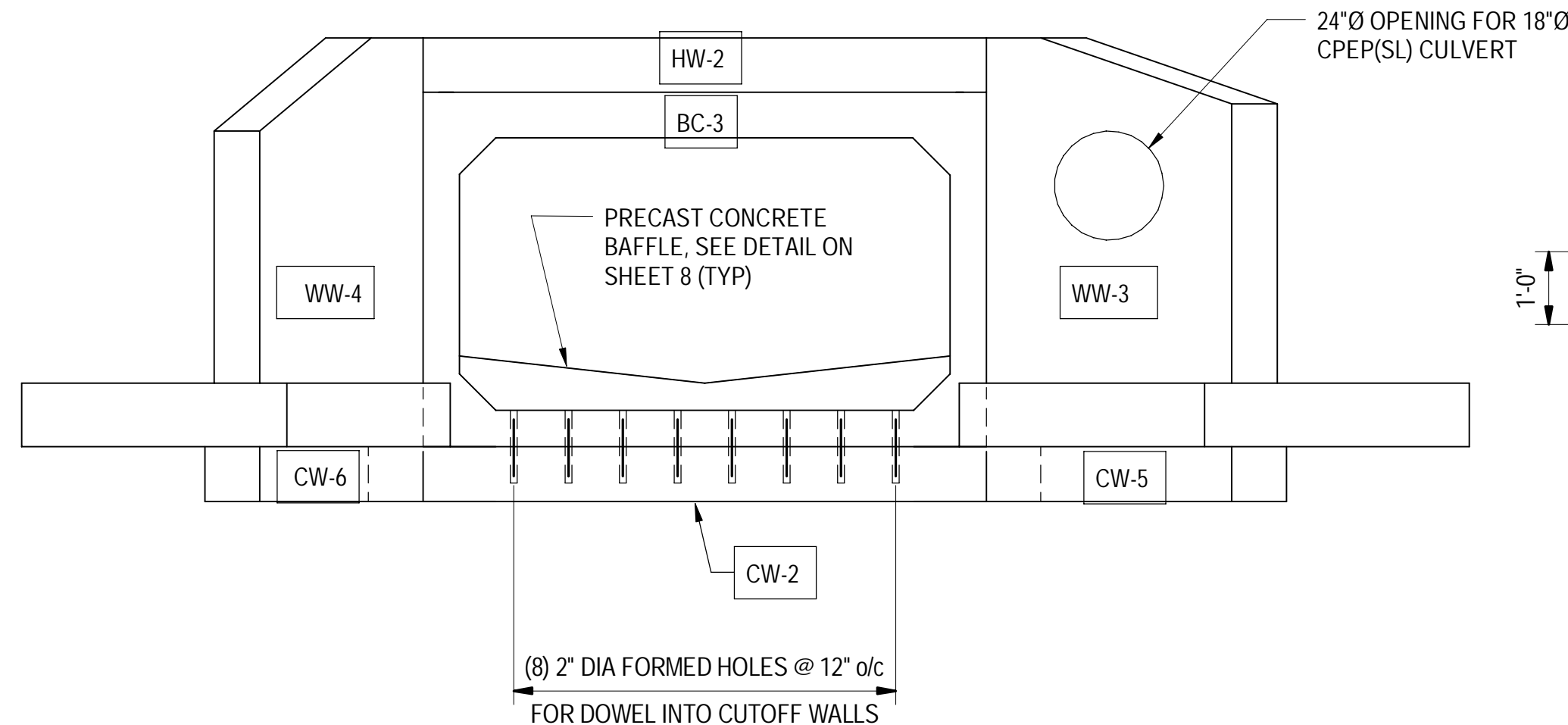
CUTOFF WALL CW-2 PLAN

1/2" = 1'-0"



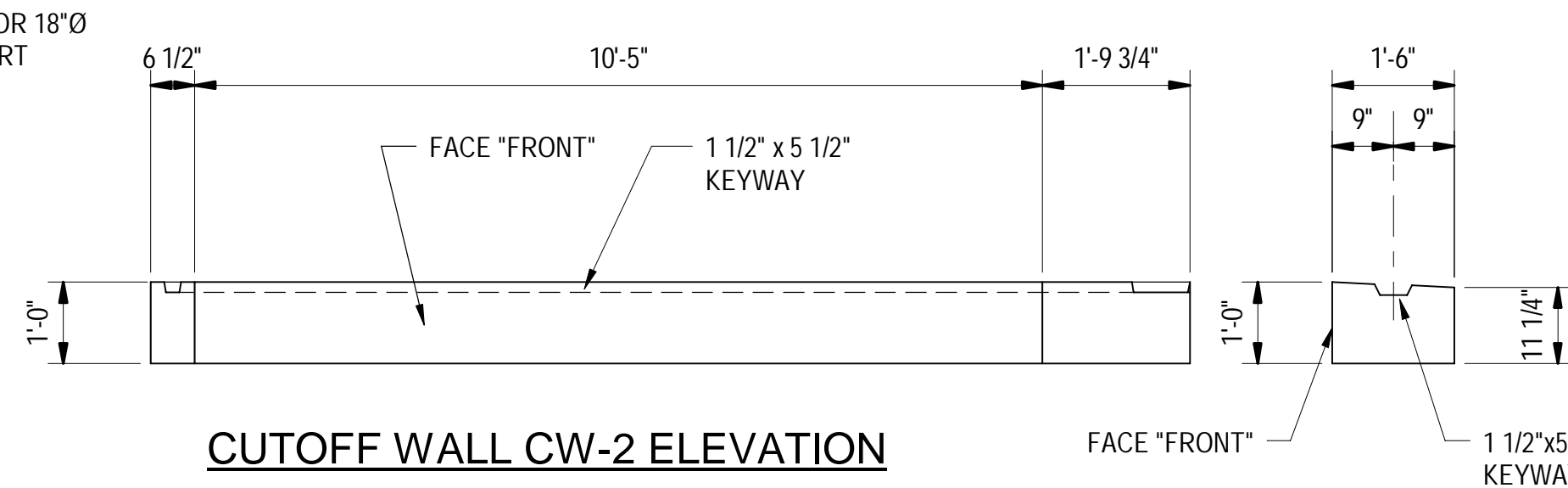
CUTOFF WALL CW-1 PLAN

1/2" = 1'-0"



CULVERT INLET ELEVATION

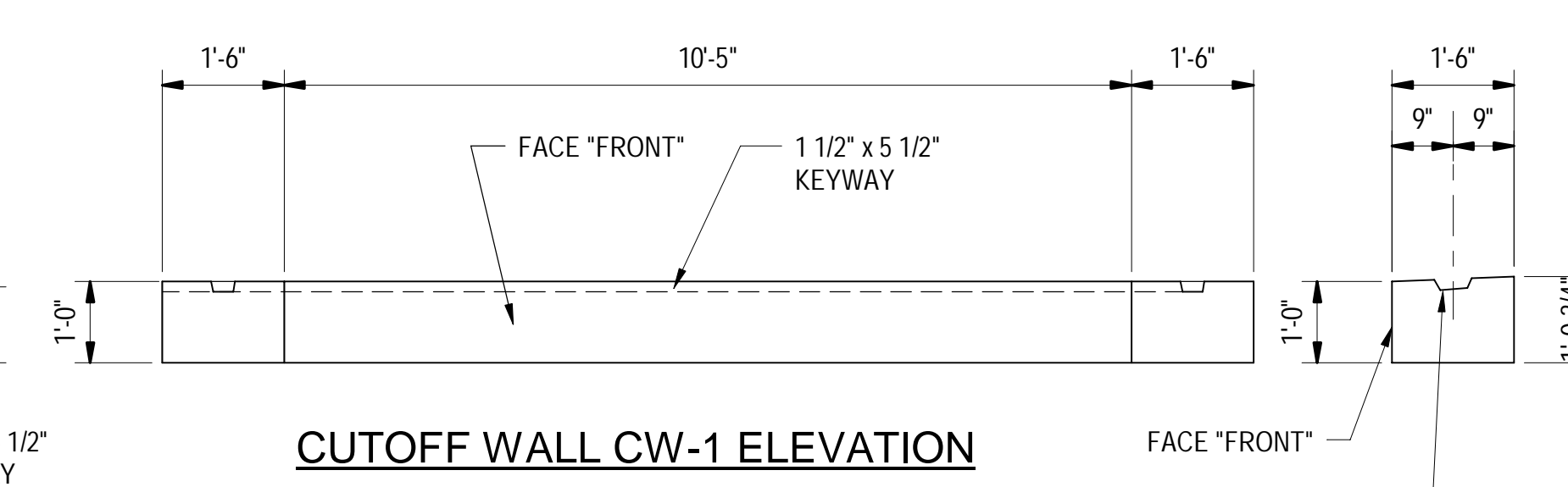
3/8" = 1'-0"



CUTOFF WALL CW-2 ELEVATION

1/2" = 1'-0"

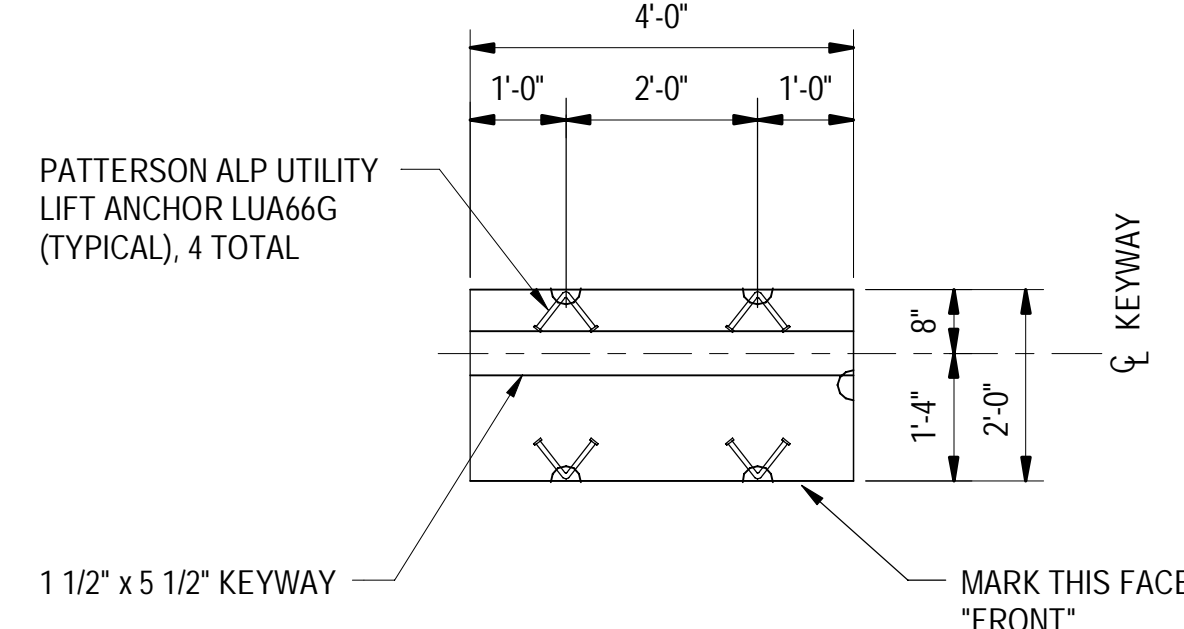
1. REINFORCING STEEL NOT SHOWN IN PLAN AND ELEVATION VIEWS.



CUTOFF WALL CW-1 ELEVATION

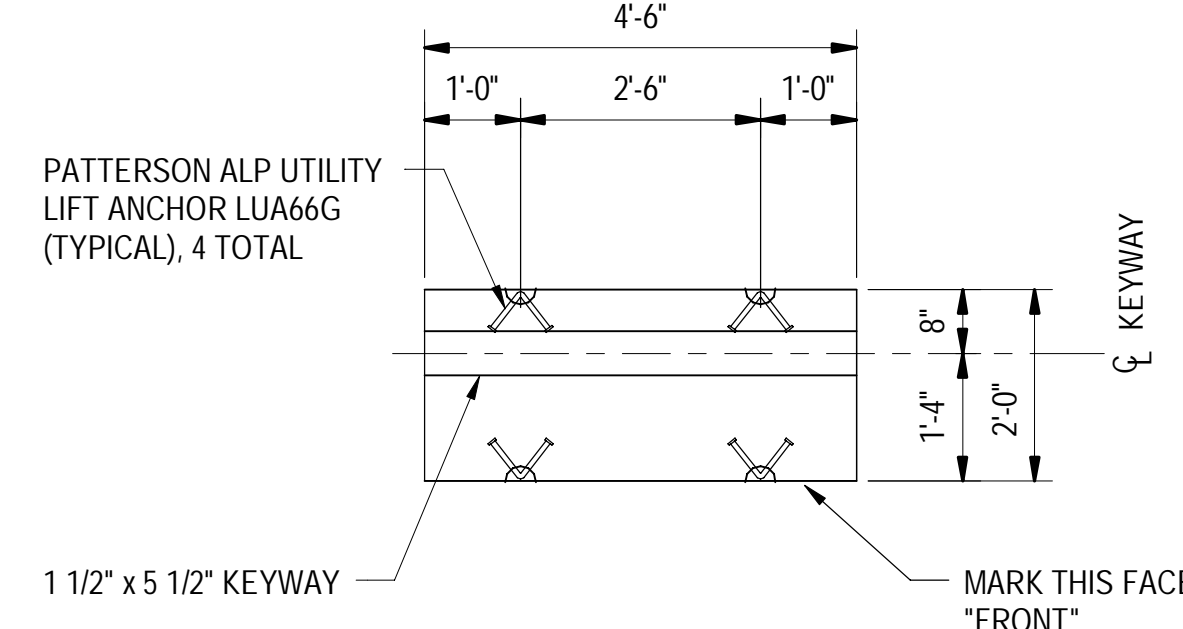
1/2" = 1'-0"

1. REINFORCING STEEL NOT SHOWN IN PLAN AND ELEVATION VIEWS.



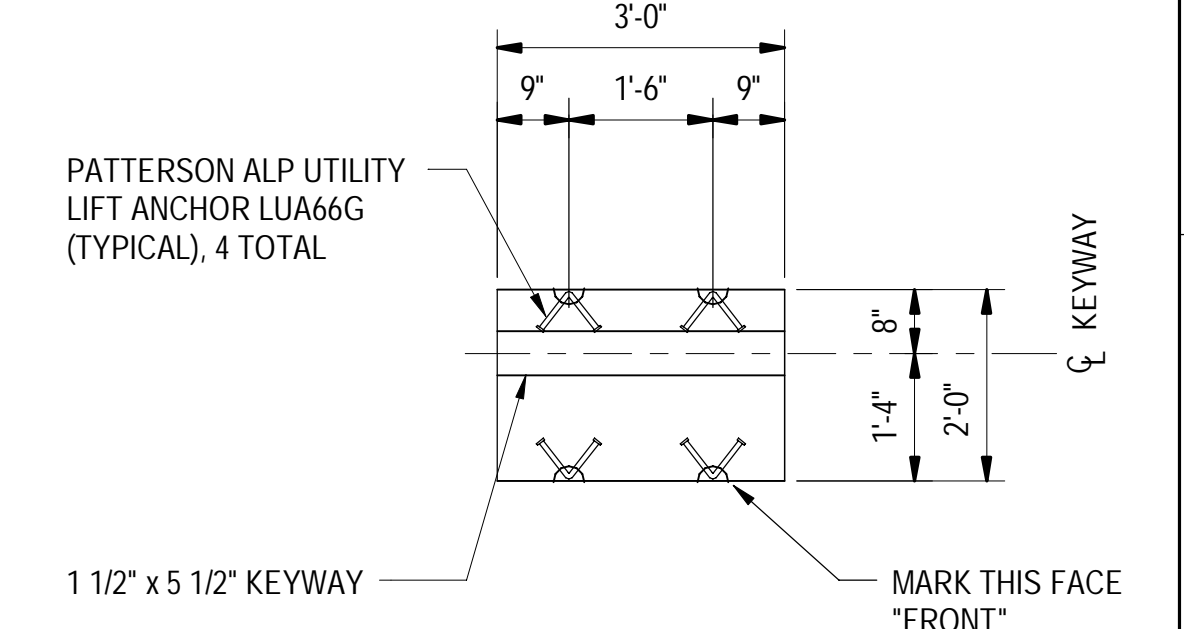
CUTOFF WALL CW-3 & CW-4 PLAN

1/2" = 1'-0"



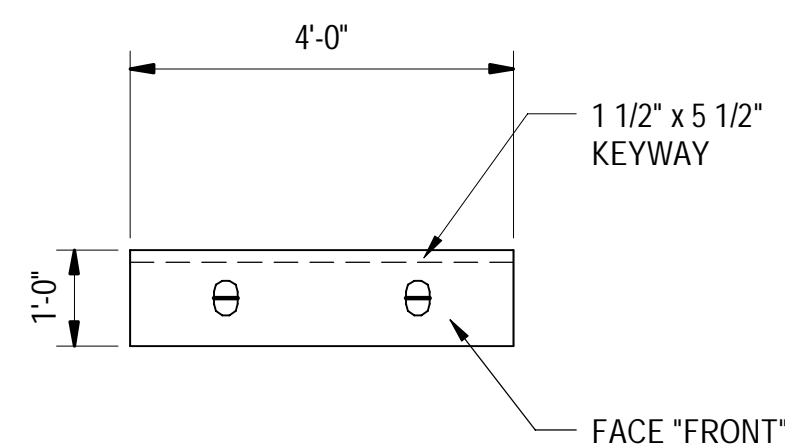
CUTOFF WALL CW-5 PLAN

1/2" = 1'-0"



CUTOFF WALL CW-6 PLAN

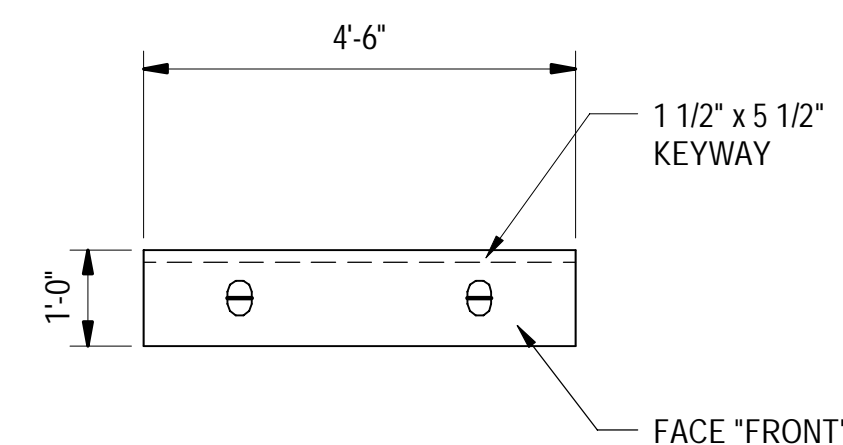
1/2" = 1'-0"



CUTOFF WALL CW-3 & CW-4 ELEVATION

1/2" = 1'-0"

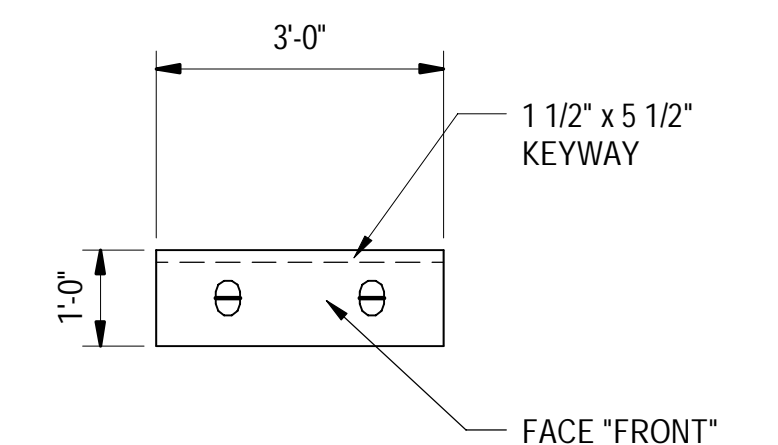
1. REINFORCING STEEL NOT SHOWN IN PLAN AND ELEVATION VIEWS.



CUTOFF WALL CW-5 ELEVATION

1/2" = 1'-0"

1. REINFORCING STEEL NOT SHOWN IN PLAN AND ELEVATION VIEWS.



CUTOFF WALL CW-6 ELEVATION

1/2" = 1'-0"

1. REINFORCING STEEL NOT SHOWN IN PLAN AND ELEVATION VIEWS.



PRECAST CONCRETE PRODUCTS
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SCRABBLE HILL ROAD
CULVERT REPLACEMENT

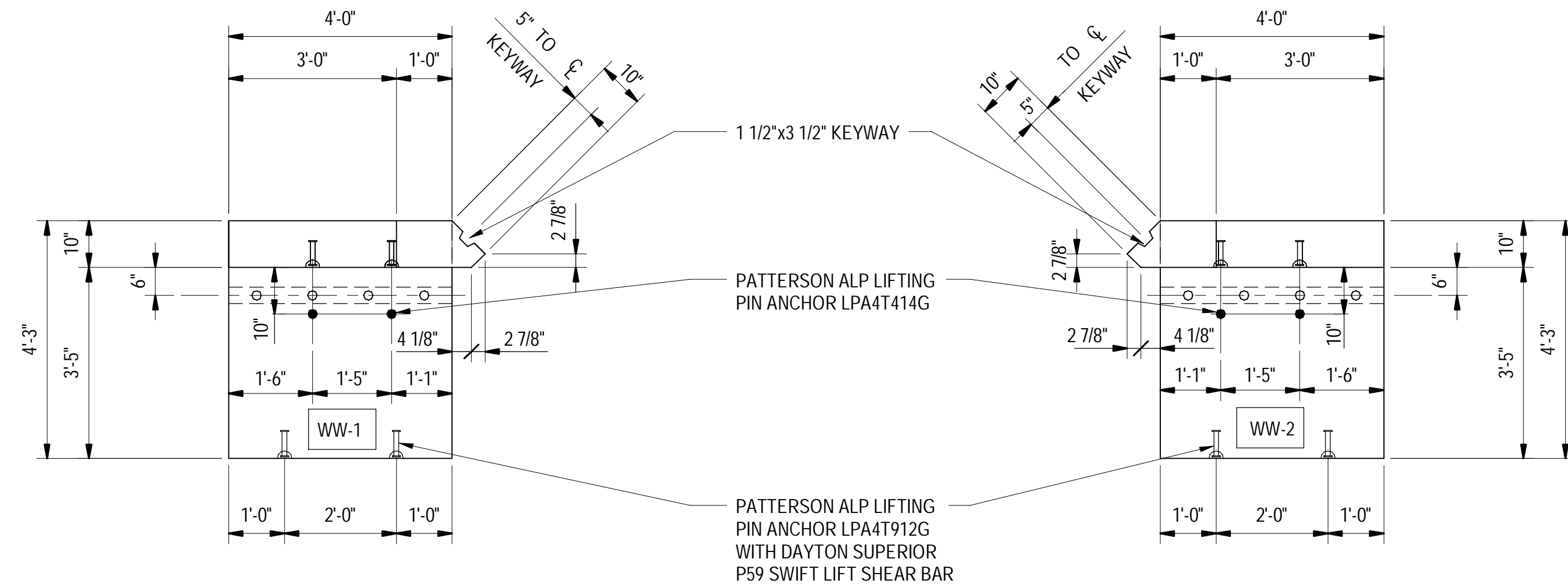
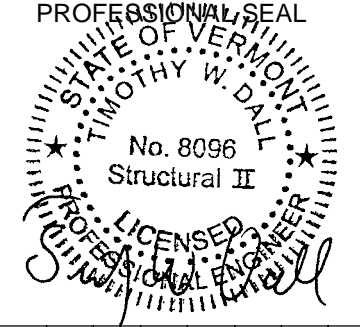
DUXBURY, VERMONT

SHEET TITLE
**ELEVATIONS AND
CUTOFF WALLS**

DRAWN BY MFQ	DATE 05/07/21
CHECKED BY MLM	D&K PROJECT # 827202L
PROJ. ENG. TWD	D&K ARCHIVE #

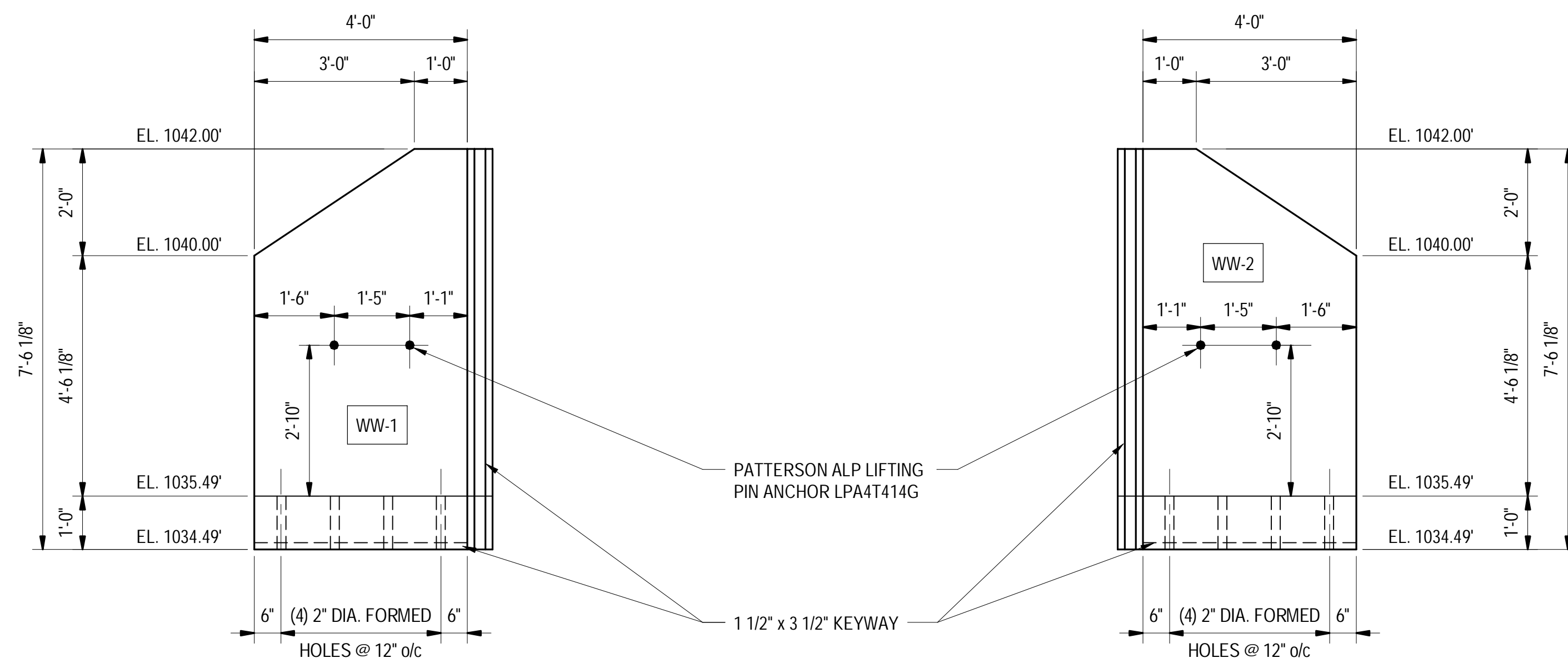
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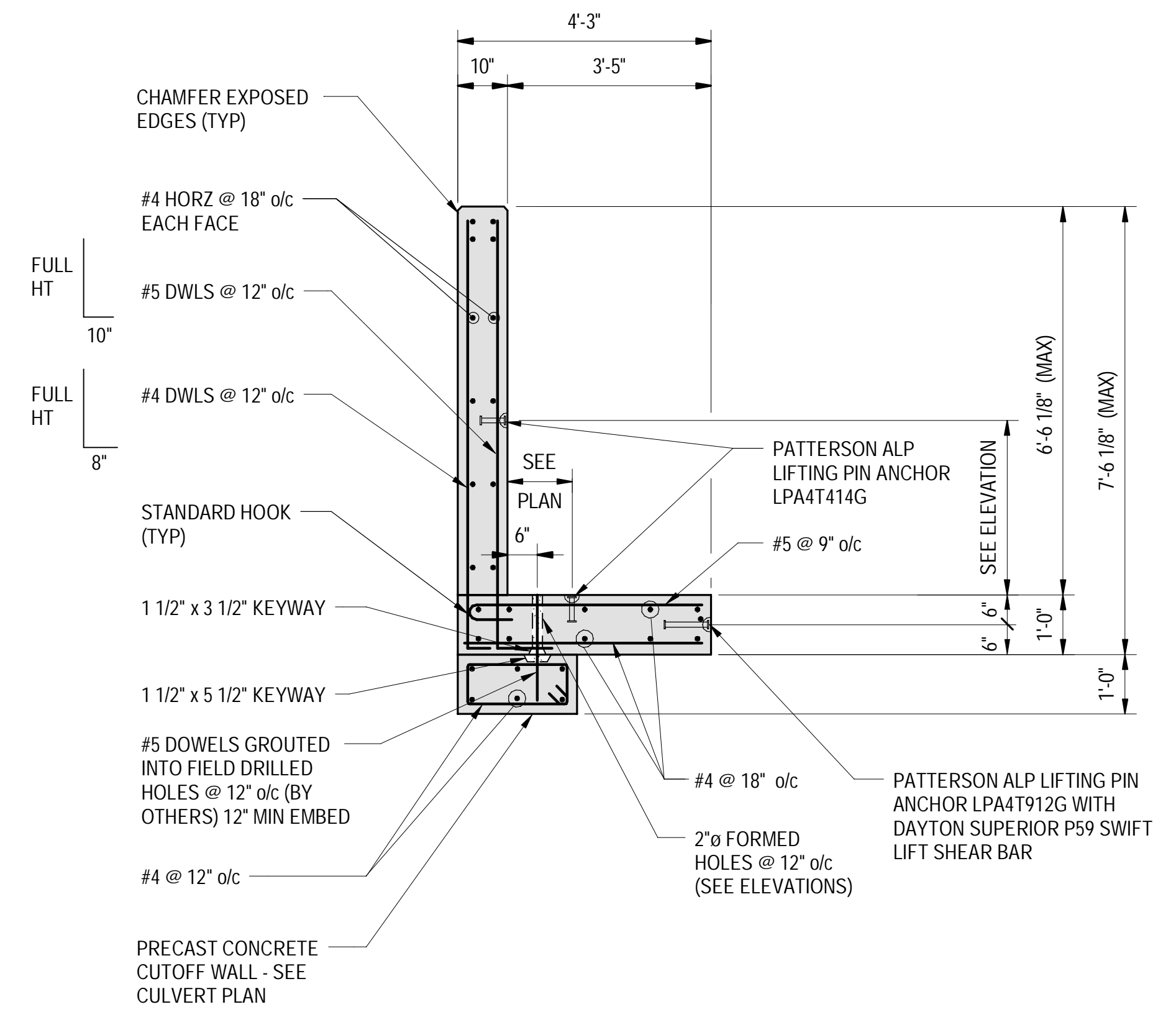
WINGWALL WW-1 PLAN
1/2" = 1'-0"

WINGWALL WW-2 PLAN
1/2" = 1'-0"



WINGWALL WW-1 ELEVATION
1/2" = 1'-0"
1. VIEW FROM BACK OF WALL.

WINGWALL WW-2 ELEVATION
1/2" = 1'-0"
1. VIEW FROM BACK OF WALL.



OUTLET WINGWALL SECTION
1/2" = 1'-0"

NO.	DATE	DESCRIPTION	BY	CHKD

CAMP
PRECAST CONCRETE PRODUCTS
78 PRECAST ROAD
MILTON, VT 05468
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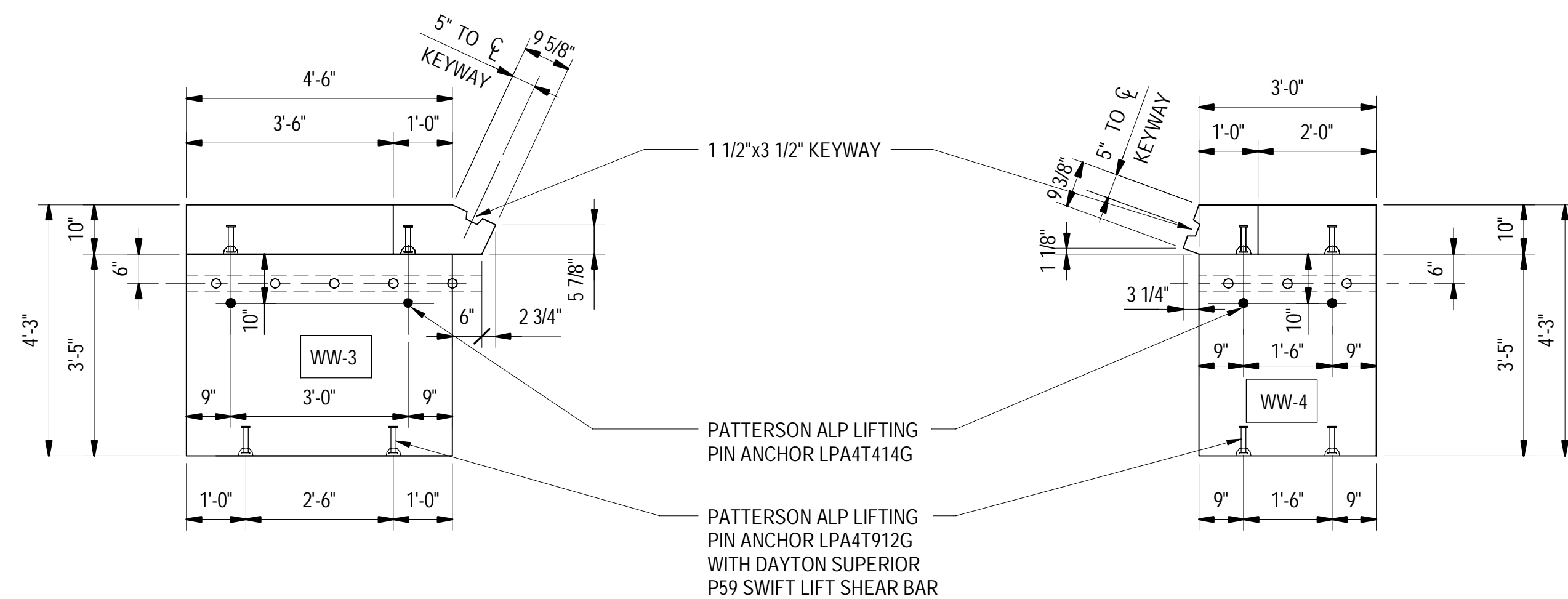
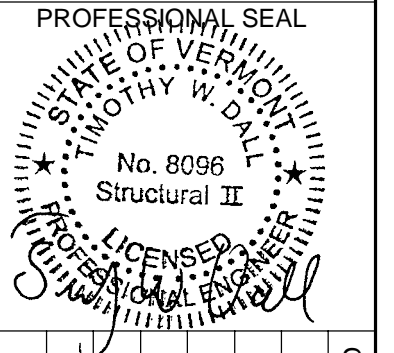
SCRABBLE HILL ROAD
CULVERT REPLACEMENT

DUXBURY, VERMONT

SHEET TITLE
OUTLET WINGWALLS

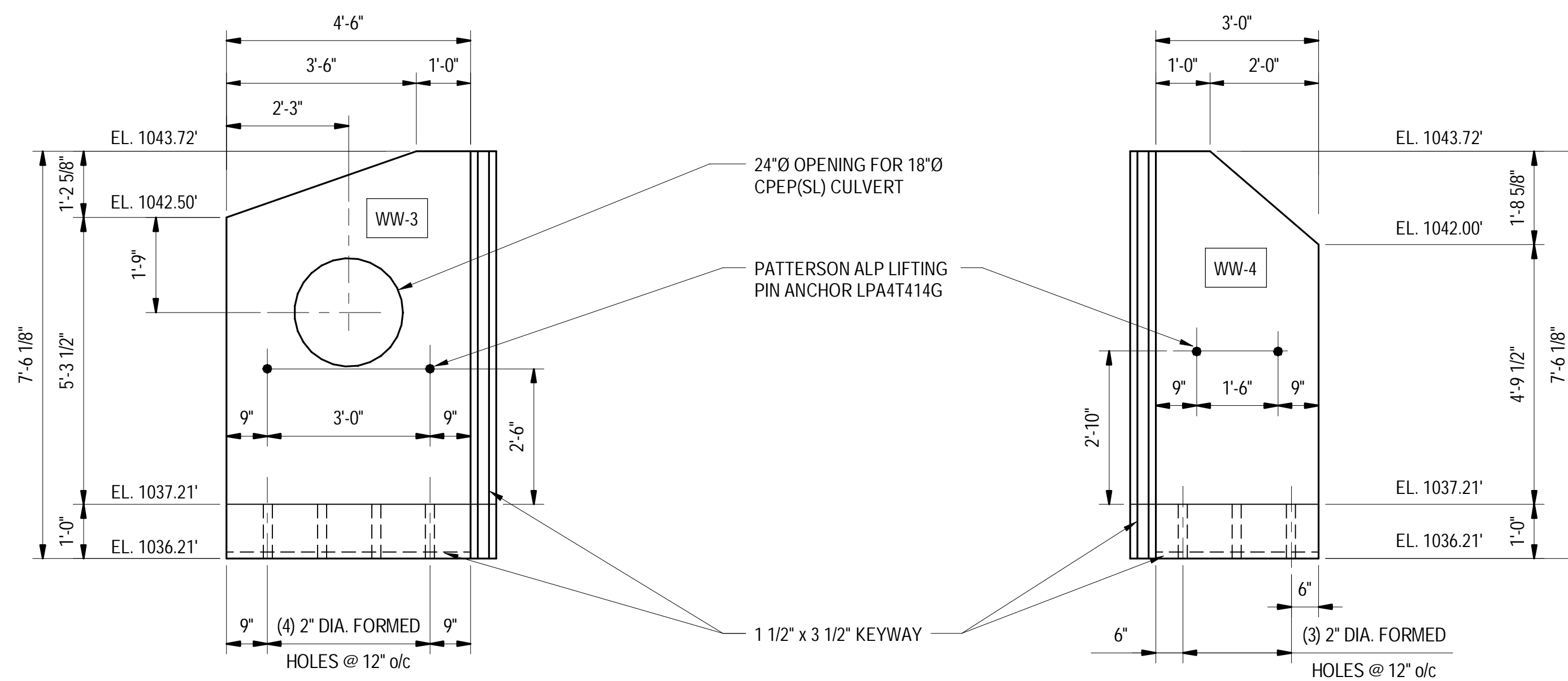
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CHECKED BY MLM	D&K PROJECT # 827202L
PROJ. ENG. TWD	D&K ARCHIVE #

SHEET NUMBER
5
SHEET 5 OF 8



WINGWALL WW-3 PLAN
1/2" = 1'-0"

WINGWALL WW-4 PLAN
1/2" = 1'-0"

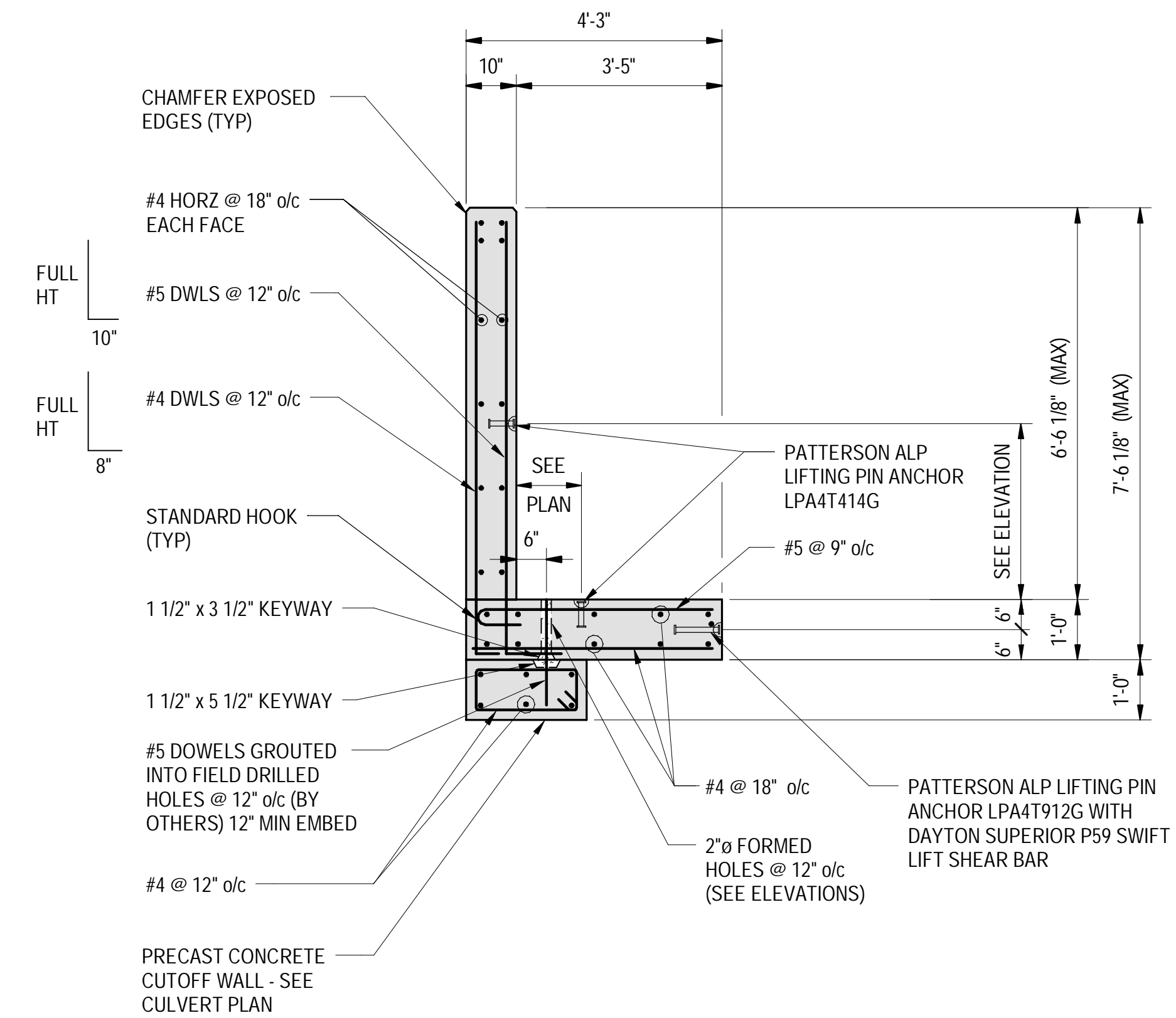


WINGWALL WW-3 ELEVATION
1/2" = 1'-0"

1. VIEW FROM BACK OF WALL.

WINGWALL WW-4 ELEVATION
1/2" = 1'-0"

1. VIEW FROM BACK OF WALL.



INLET WINGWALL SECTION

1/2" = 1'-0"

NO.	DATE	DESCRIPTION	BY	CHKD

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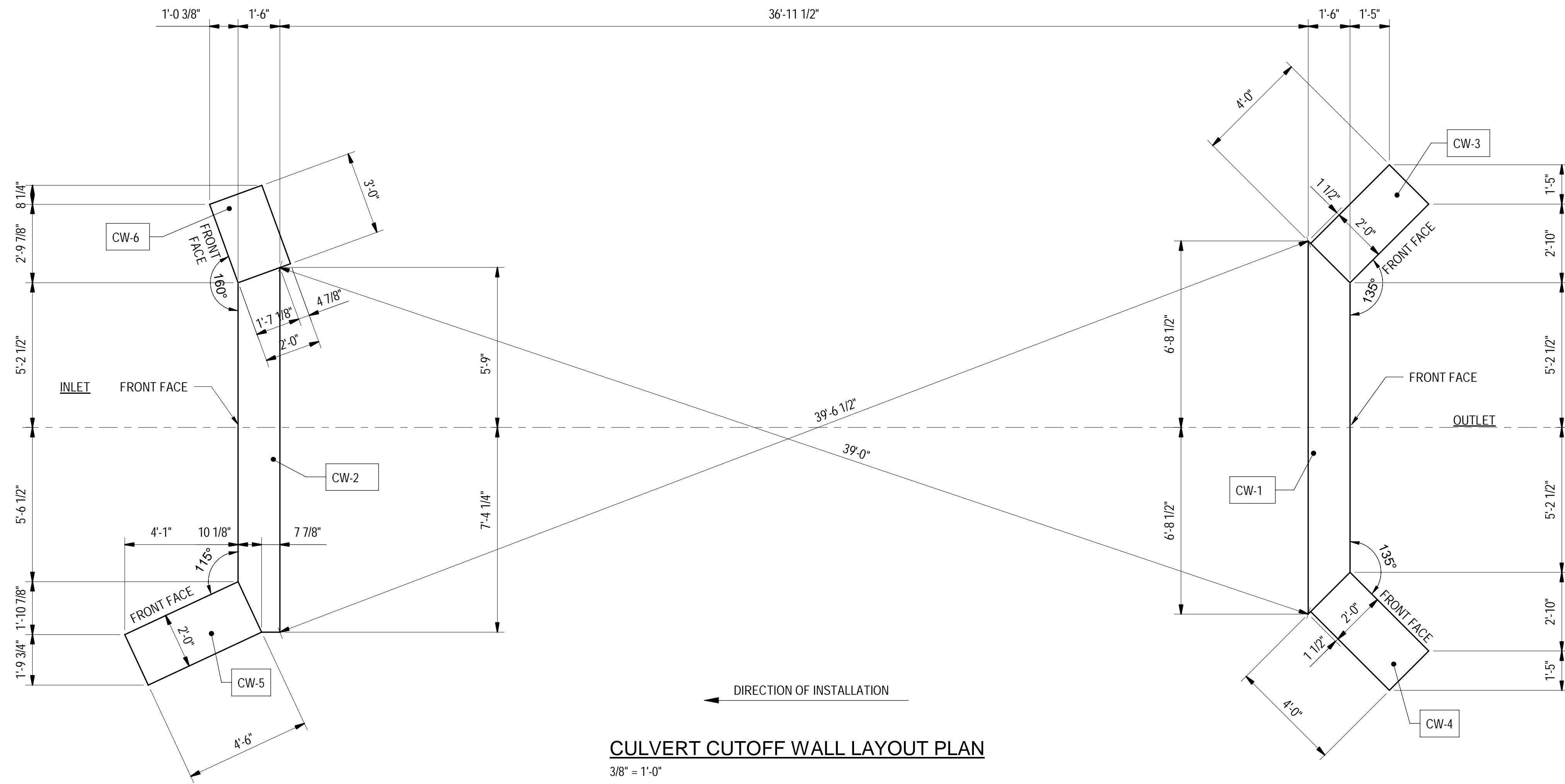
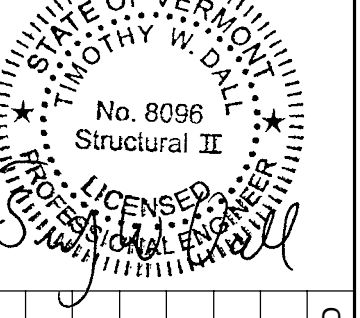
SCRABBLE HILL ROAD
CULVERT REPLACEMENT

DUXBURY, VERMONT

SHEET TITLE
INLET WINGWALLS

DRAWN BY MFQ	DATE 05/07/21
CHECKED BY MLM	D&K PROJECT # 827202L
PROJ. ENG. TWD	D&K ARCHIVE #

SHEET NUMBER
6
SHEET 6 OF 8



CULVERT CUTOFF WALL LAYOUT PLAN

3/8" = 1'-0"
1. ALL DIMENSIONS ON HORIZONTAL PLANE.

NO.	DATE	DESCRIPTION	BY	CKD

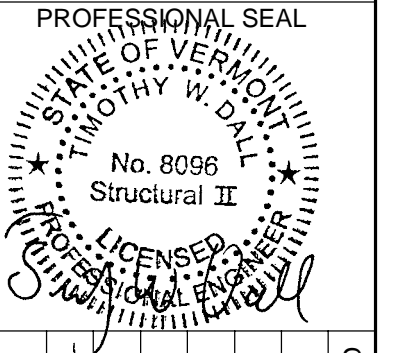
CAMP
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SCRABBLE HILL ROAD
CULVERT REPLACEMENT
DUXBURY, VERMONT

SHEET TITLE
CUTOFF WALL
LAYOUT PLAN

DRAWN BY MFQ	DATE 05/07/21
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PROJ. ENG. TWD	D&K ARCHIVE #

SHEET NUMBER
7
SHEET 7 OF 8



NO.	DATE	DESCRIPTION	BY	CKD

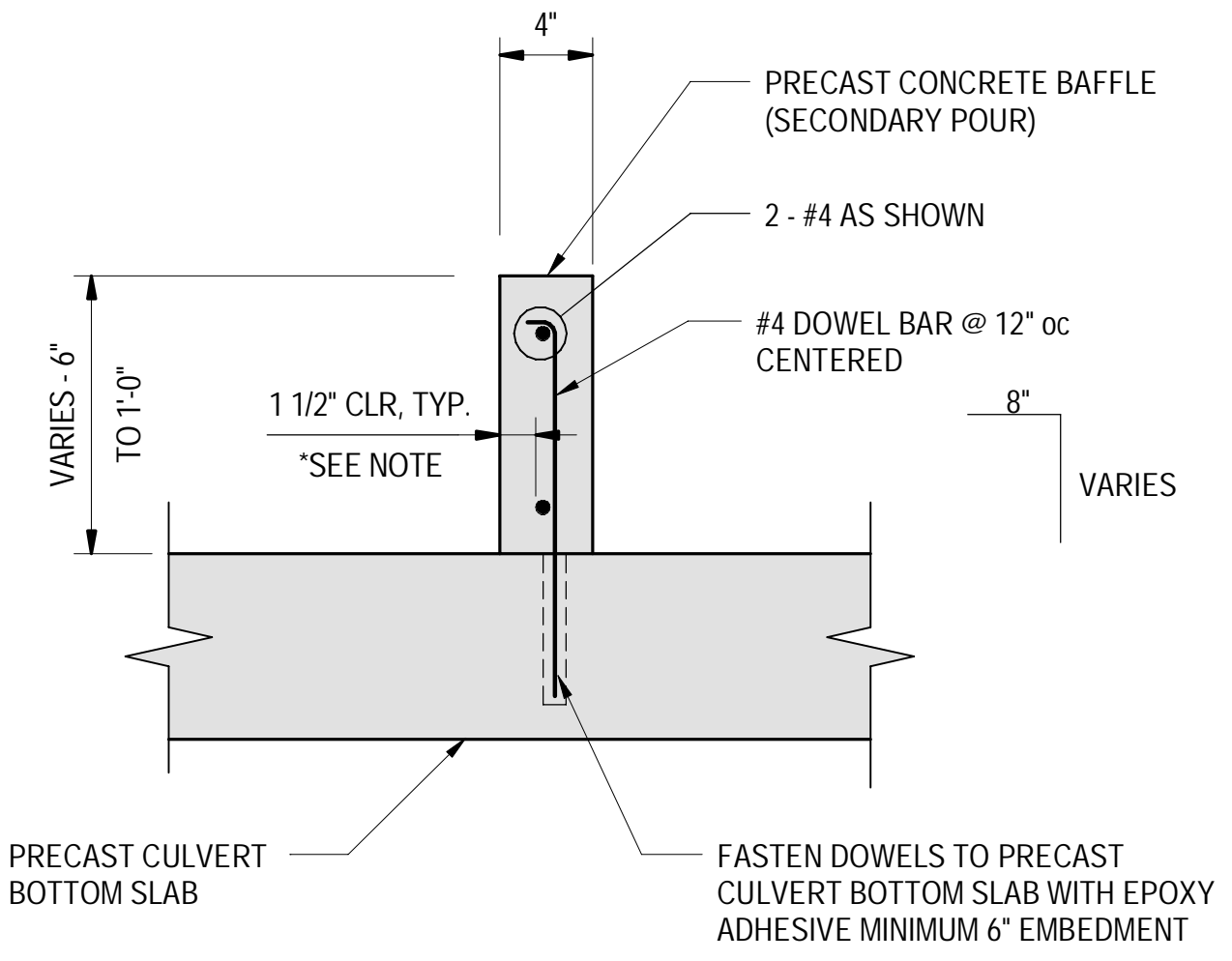
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SCRABBLE HILL ROAD
CULVERT REPLACEMENT
DUXBURY, VERMONT

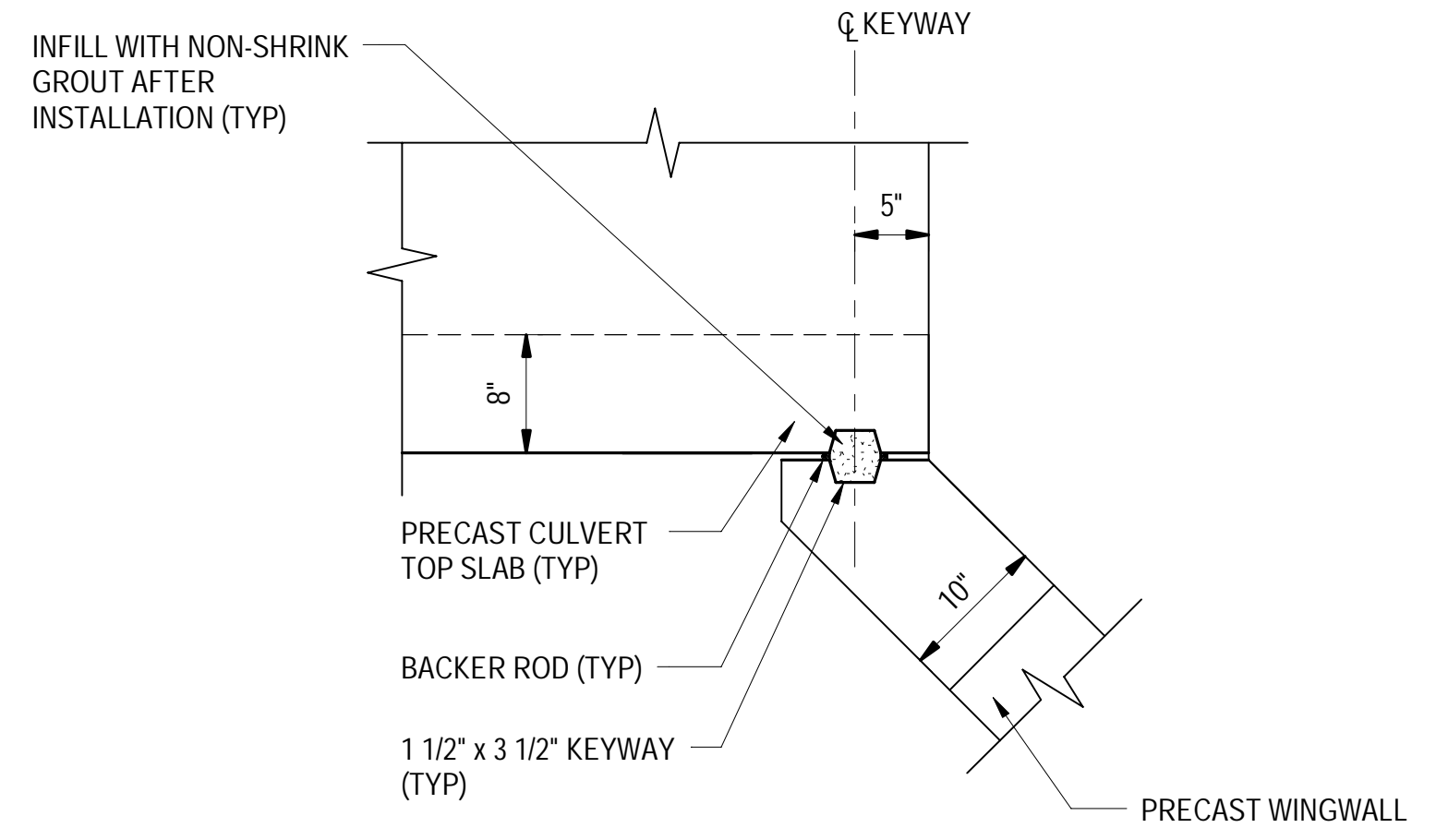
SHEET TITLE
DETAILS

DRAWN BY MFQ	DATE 05/07/21
CHECKED BY MLM	D&K PROJECT # 827202L
PROJ. ENG. TWD	D&K ARCHIVE #

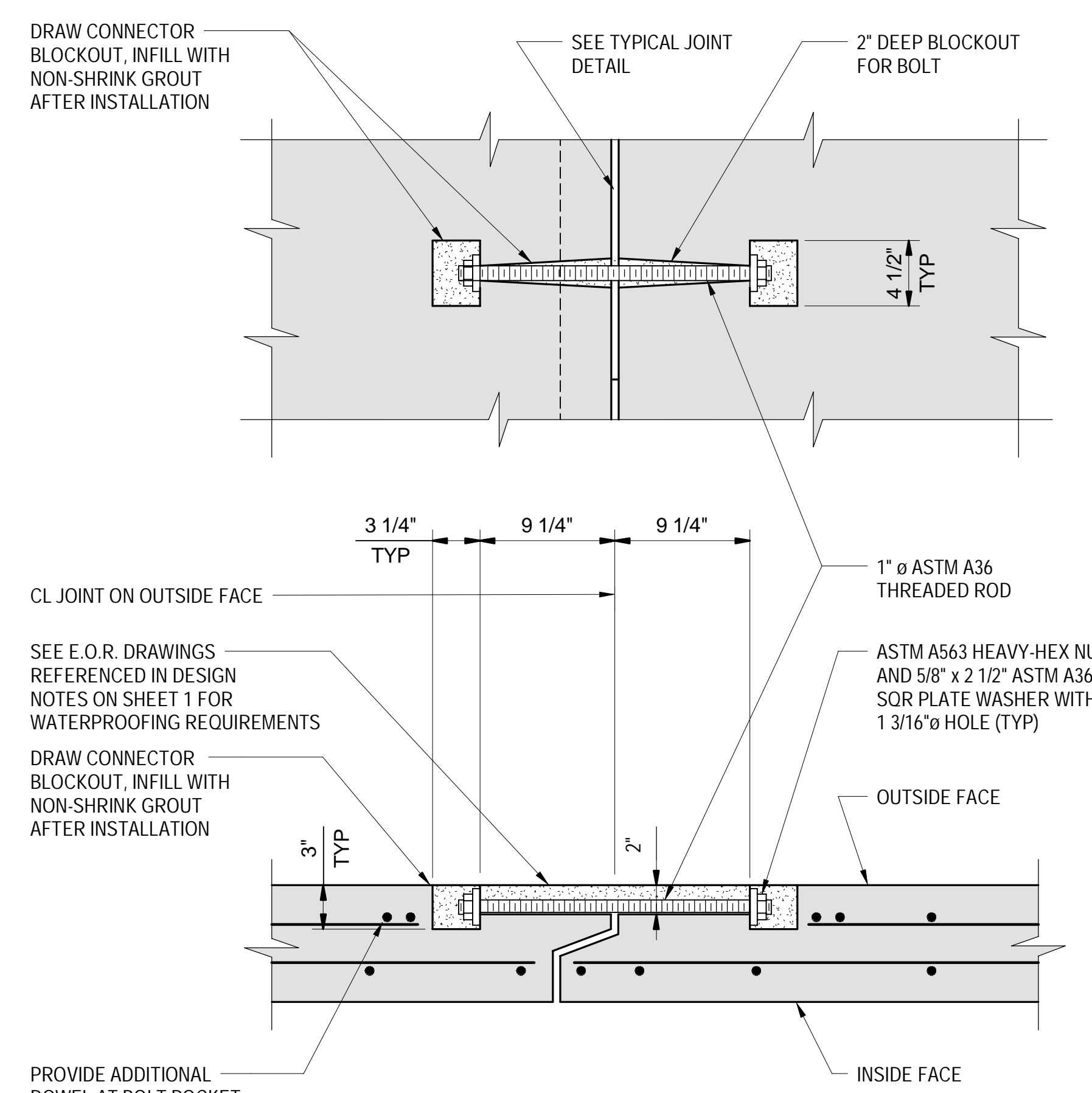
SHEET NUMBER
8
SHEET 8 OF 8



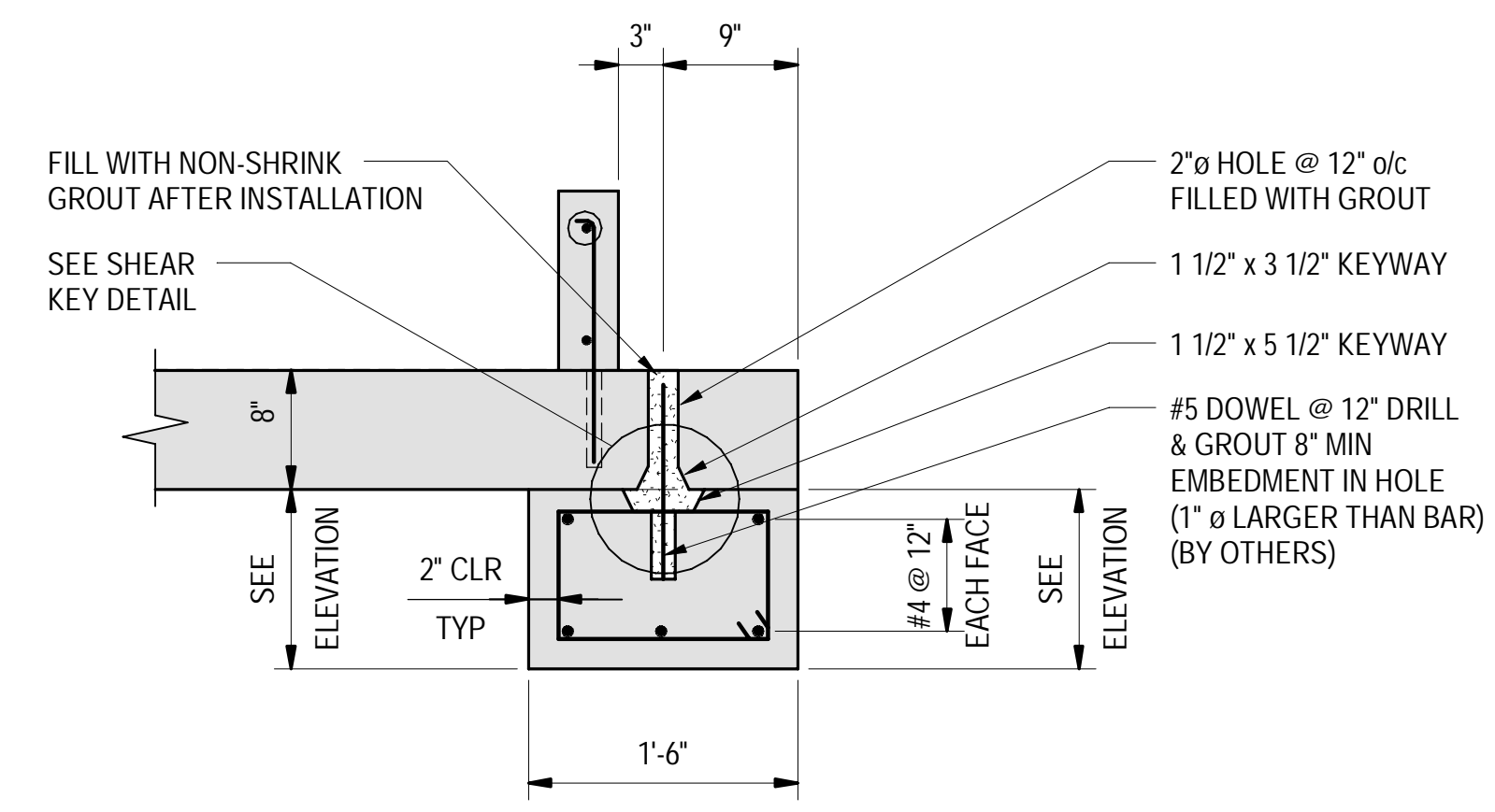
TYPICAL PRECAST CONCRETE BAFFLE DETAIL
1 1/2" = 1'-0"
NOTE: UNABLE TO MEET 2" CLEAR WITH 4" BAFFLE WIDTH



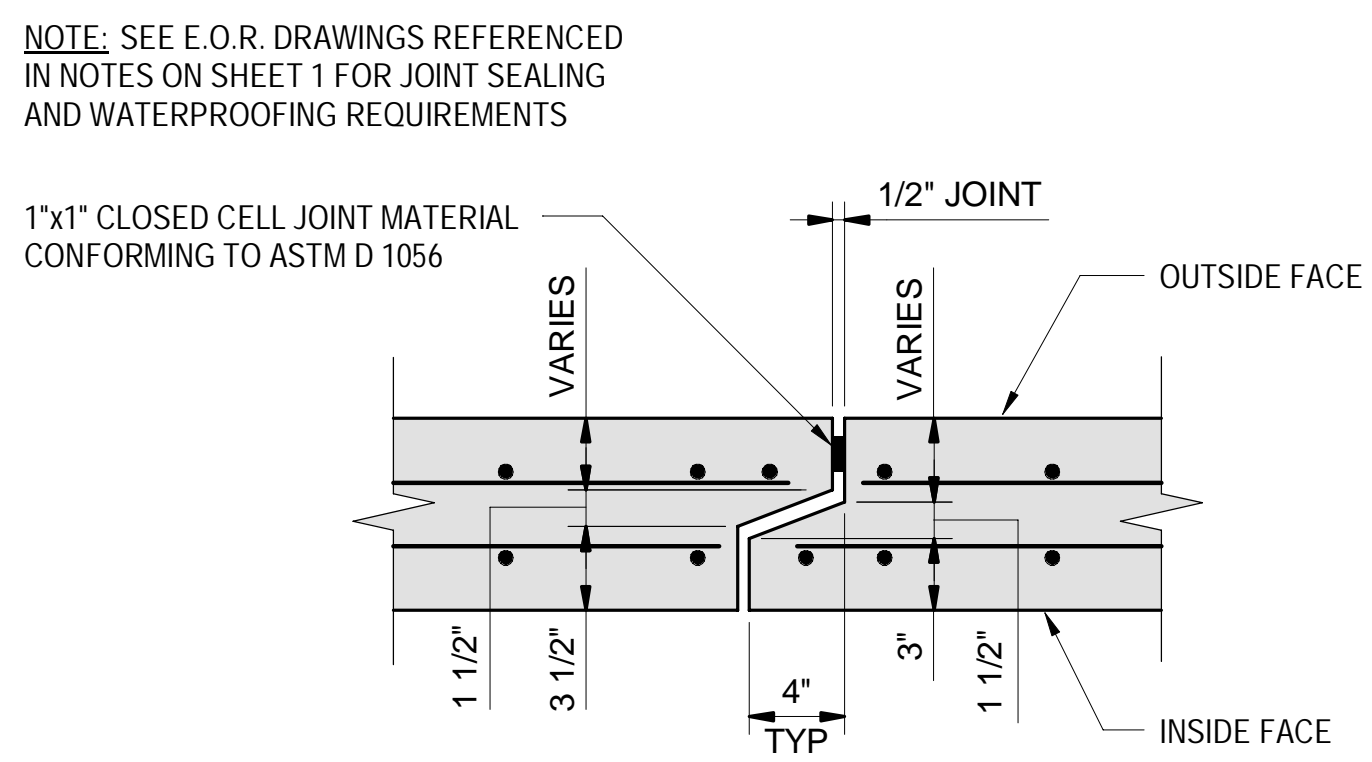
TYPICAL WINGWALL/CULVERT CONNECTION DETAIL
1" = 1'-0"



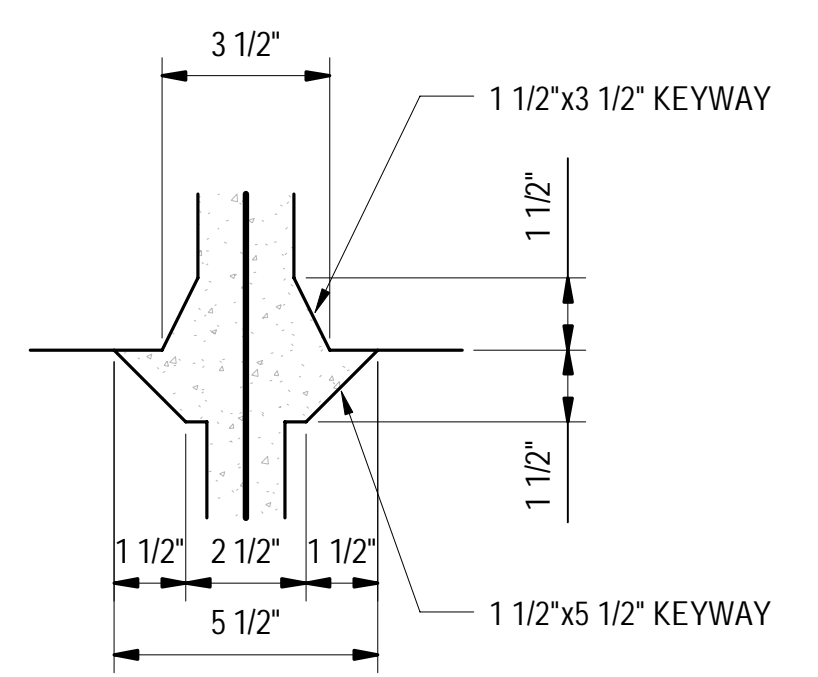
TYPICAL DRAW CONNECTOR DETAIL
NOT TO SCALE
1. ALL DRAW CONNECTOR HARDWARE TO BE GALVANIZED.
2. DRAW CONNECTOR TO REMAIN IN PLACE AFTER INSTALLATION.
3. DRAW CONNECTOR TO BE PULLED UNTIL JOINT MATERIAL IS COMPRESSED.



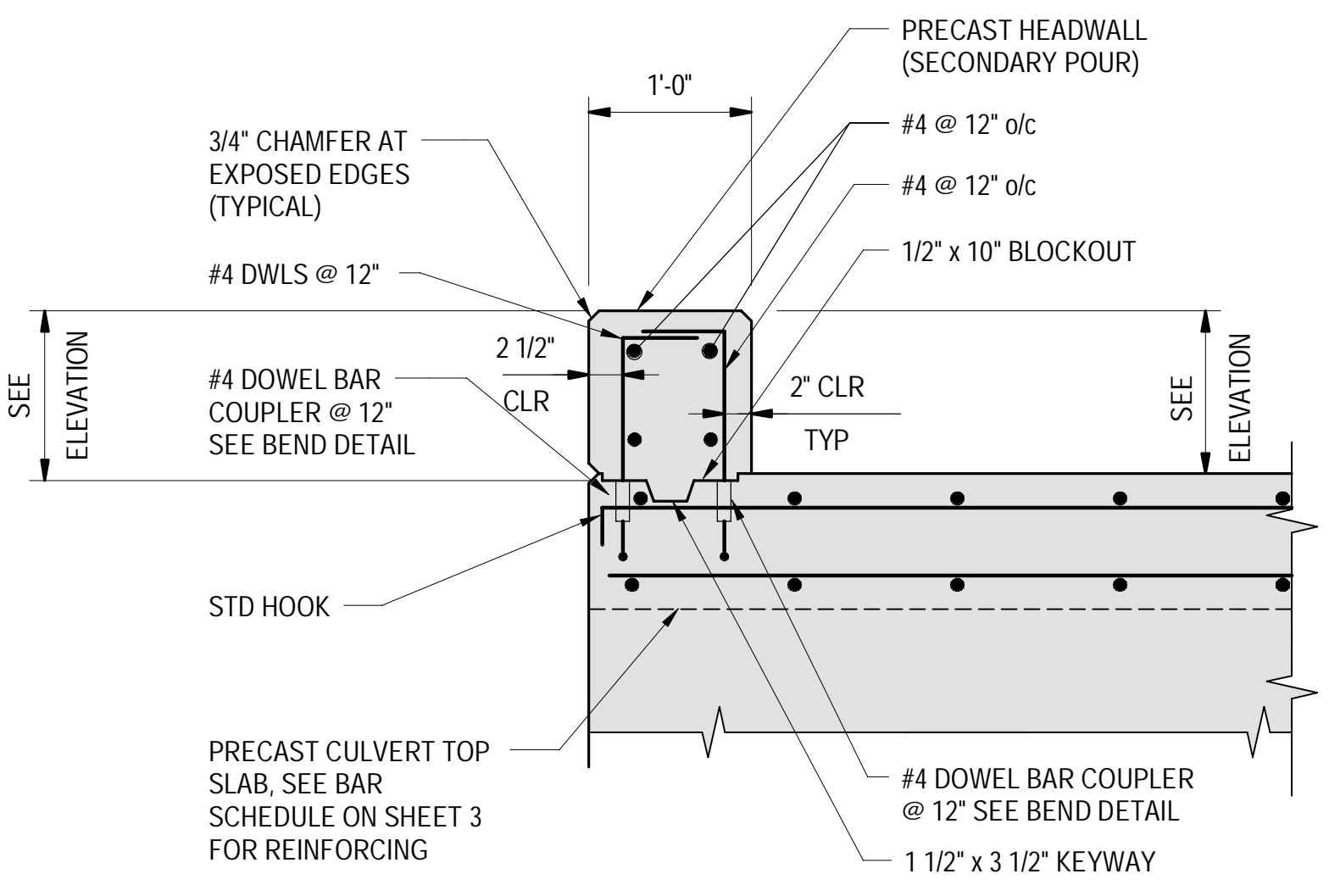
TYPICAL CULVERT CUTOFF WALL DETAIL
1" = 1'-0"



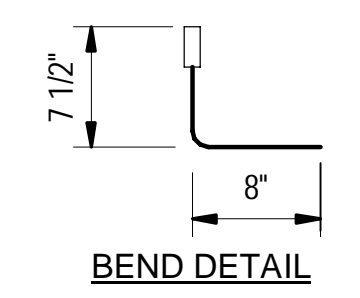
TYPICAL JOINT DETAIL
NOT TO SCALE



SHEAR KEY DETAIL
NOT TO SCALE



TYPICAL HEADWALL DETAIL
1" = 1'-0"



BEND DETAIL